EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

In October 1999, the Secretary of the Army and the Chief of Staff of the Army articulated a vision for the Army to meet the challenges of the 21st century. The Army must become more strategically responsive and dominant at every point on the spectrum of military operations, ranging from intensive combat to peacekeeping duties and humanitarian missions.

Hawai'i has been selected as the location for an interim force based on the Stryker vehicle, or a Stryker Brigade Combat Team (SBCT)[1]. As the Army Transforms, the interim force will use available technology and weapons, select new equipment, such as the Stryker, and adopt a modified training doctrine to train the soldiers to be able to meet the goals of a fast reacting light force. This will allow the Army to deploy more quickly, be more lethal, highly mobile, and survivable than the legacy force. The interim force will also serve as a "working model" to refine equipment, weapons, and training of the objective force.

The Objective Force would come out of the development and refinement of weapons, equipment, communications, and training that will occur during the interim phase over the next 30-years when the entire Army would be transformed.

The Legacy Force, those forces that have not undergone transformation, would continue to provide the strategic assurance for the Army's responsibility to fight and win decisively against any threat while the Army transforms to the Objective Force.

SBCT is a new concept that uses technology and information to improve the abilities of Army units. This change will give the Army greater flexibility and will improve the variety of missions to which the Army can respond. The SBCT will use the lighter more efficient Stryker vehicle to transport soldiers more quickly to areas of conflict. Because of its speed and maneuverability, the Stryker can deliver soldiers more quickly and closer to the areas

[1] SBCT is the new name for Interim Brigade Combat Team (IBCT), which was used during the public scoping process. This is a name change only: SBCT and IBCT are synonymous.

where they are needed. Using improved weapons with greater accuracy, the Stryker can provide the force with protective cover as soldiers dismount and move by foot to desired target areas. Once their task has been accomplished, the soldiers would again board the Stryker for transport back to their headquarters or another area for further operations. In the Stryker, soldiers are able to obtain time sensitive critical information or intelligence from their commanders, and they can remain in constant communication with each other, their commanders, or other field units via refined satellite links and Internet connections that are filtered into the Stryker vehicle. This is a radical departure from the way soldiers fight today and, as such, requires new ranges, training facilities, high tech communication facilities, and new training protocol. In addition, this technology gives the SBCT the ability to conduct combat operations faster and over far greater areas of land than can be achieved presently. Taken together, these requirements create a need for new training and maintenance facilities and expansion of maneuver lands to provide more realistic training conditions.

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the Department of the Army prepared a programmatic environmental impact statement (PEIS) to evaluate the potential environmental and socioeconomic effects associated with transformation of the entire Army. The Army issued *The Final Programmatic Environmental Impact Statement for Army Transformation* in February 2002, published the notice of availability on March 8, 2002, and signed the record of decision (ROD) on April 11, 2002, indicating its decision to proceed with transformation. The PEIS designated the 2nd Brigade, 25th Infantry Division (Light) (ID[L]) in Hawai'i (referred to throughout this document as the 2nd Brigade) and five other units across the US as part of the initial phase of transformation. These units would be converted to an SBCT.

Transformation will result in not just a modernized version of the current Army but will combine the best characteristics of current forces. The transformed Army will possess the lethality and speed of the heavy force, the rapid deployment mentality and toughness of the light forces, and the unmatched precision and close combat capabilities of the special operations forces. A key measure of transformed forces will be their strategic mobility.

ES.2 PURPOSE OF THE PROPOSED ACTION

On April 11, 2002 the Army signed a ROD indicating its decision to proceed with transformation and designating Hawai'i as one of six locations for the initial transformation including enhancing training capabilities to support the nationwide transformed forces. This EIS analyzes alternatives on how to implement transformation in Hawai'i.. The purpose of the Proposed Action is to assist in bringing the Army's Interim Force to operational capability and to provide realistic training in Hawai'i. Twenty-eight projects are proposed for the US Army Hawai'i (USARHAW) that would improve on the existing support structure and facilities to provide the necessary field training required for an SBCT. Reconfiguring maneuver areas, establishing combat training facilities more appropriate to the types of threats the Army expects to encounter, and strengthening infrastructure would ensure that SBCT's leaders and soldiers would be prepared for the full spectrum of military operations. (See Section 1.1 for a description of the transformation process and what constitutes an SBCT.)

ES.3 NEED FOR THE PROPOSED ACTION

The need for transformation of the 2nd Brigade is to provide the nation with capabilities that meet current and evolving national defense requirements. As Army doctrine evolves, training and facilities must also change. The SBCT goal is to be able to deploy anywhere in the world and be prepared to carry out the Army's military mission within 96 hours of deployment from Hawai'i. While SBCT units will retain the mobility and flexibility of traditional Army light forces, they will incorporate the lethality and survivability of traditional Army heavy forces. They will be equipped with new vehicles, equipment, and communications technology to achieve their missions. Training must include a greater emphasis on military operations in urban terrain (MOUT) to prepare soldiers for a variety of situations, such as resolving general urban unrest, infiltrating and clearing buildings, and fighting at close range. Training for these kinds of activities requires constructing new ranges and support facilities on O'ahu and the island of Hawai'i.

The 2nd Brigade in Hawai'i was selected to transform to an SBCT in the PEIS based on the following three factors:

- Its location within the Pacific Rim is a critical area of interest for the United States. Stationing an SBCT in Hawai'i allows the President to rapidly respond to events in an area of increasing importance to national security. The goal of the Hawai'i SBCT would be to deploy a brigade anywhere within the Pacific Rim within 96 hours or to combine with other SBCT brigades or Objective Forces to place a division anywhere in the Pacific Rim within five days, or five divisions within thirty days.

- The 2nd Brigade's composition and mission and the benefits of transforming to an SBCT. The 2nd Brigade is already a light infantry unit, which executes full spectrum military missions in complex terrain. Hawai'i provides the terrain and conditions most likely to be encountered in the Pacific Rim. The enhancement of this unit to an SBCT would allow this already light unit to be more mobile, lethal, and survivable under a greater variety of conditions.

- The ease of deploying the SBCT because of its proximity to multiple airbases of suitable size.

If the 2nd Brigade does not transform in Hawai'i the Army may not be able to respond rapidly enough in all areas of the world for operations requiring military action. The strategic significance of land forces continues to lie in their ability not only to fight and win the Nation's wars but also to provide options that shape the global environment to benefit the United States and its allies.

ES.4 PUBLIC INVOLVEMENT

By providing a means for open communication between the Army and the public, the procedural aspects of NEPA promote better decision-making. Those having a potential interest in the Proposed Action, including minority, low-income, disadvantaged, Native Hawaiian groups and others, were notified and invited to participate in the scoping and environmental impact analysis process.

The Council on Environmental Quality (CEQ) regulations, Army regulations, and 32 Code of Federal Regulations (CFR) 651 guide public participation opportunities. These include issuing in the *Federal Register* a notice of intent (NOI) to prepare an EIS[2], initiating a public scoping process and a 45-day public review period for the draft EIS (DEIS), and publishing the final EIS (FEIS), accompanied by a 30-day mandatory waiting period before a final decision is made and a ROD is issued. Following publication of the NOI, public notices were published in the major newspapers on the island of Hawai'i and on O'ahu announcing the time and location of seven public scoping meetings to solicit input and to obtain comments on the range of the EIS. In addition, the scoping meetings were announced in the April 8, 2002, issue of *The Environmental Notice,* published by the State of Hawai'i, Department of Health, Office of Environmental Quality Control (OEQC). The scoping period was 45 days, during which the public, organizations, and agencies were encouraged to provide comments.

Seven scoping meetings were held between April 16 and 30, 2002. For residents and groups interested in the Proposed Action at Pōhakuloa Training Area (PTA) on the island of Hawai'i, public scoping meetings were held in Hilo and Waikoloa. For residents and groups interested in the Proposed Action at Schofield Barracks Military Reservation (SBMR) training areas and other training facilities on O'ahu, public scoping meetings were held in Wahiawā, Honolulu, Hale'iwa, Kahuku, and Wai'anae. The Army published early notices of the meeting times and locations. A total of 283 people attended the seven meetings.

By letter dated May 28, 2002, the Garrison Commander sent each person who attended a scoping meeting a letter thanking them for their participation in the scoping process, and enclosing a 16-page information paper describing the proposed transformation and mission related projects. Also enclosed with the letter was a copy of the briefing presented at the scoping meetings, for the attendees' reference. These documents were also posted on the SBCT website and placed at various public and university libraries on Oahu and the Big Island. The scoping period was extended another 30 days, to June 29, 2002, to gather additional public comment.

In addition to oral comments received at the public scoping meetings, the Army also received written comments in the form of e-mails, letters, and form letters, comments via telephone, and comments at separate information meetings requested by groups and organizations. A summary of the comments received during the scoping process is included in Appendix B, organized by location, meeting date, and subject.

ES.5 SCOPE OF ANALYSIS

This EIS has been developed in accordance with NEPA and the Army's implementing regulations issued by the CEQ and the Army.[3] The purpose of the EIS is to inform Army decision-makers and the public of the likely environmental consequences of the Proposed

[2]The notice of intent for this EIS was published in the *Federal Register,* March 4, 2002 (76 FR 9717), and is found in Appendix B.

[3]Council on Environmental Quality: Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR Parts 1500-1508 and Army implementing regulations contained in 32 CFR Part 651.

Action and reasonable alternatives on how to transform the 2nd Brigade in Hawai'i. It focuses on site-specific issues of transforming the 2nd Brigade to an SBCT and the impacts on O'ahu and the island of Hawai'i.

This EIS analyzes the conversion of the 2nd Brigade to an SBCT and enhancement of training capabilities to meet the training requirements of the transformed force. The conversion of the 2nd Brigade to SBCT status would primarily involve changes in force structure (the number of personnel assigned to the unit), equipment and vehicles, and doctrine under which the unit would train for carrying out its assigned missions, as well as improvements to existing ranges and construction of new training facilities. Under transformation, the SBCT would have more personnel than the present 2nd Brigade. A principal change would involve putting the Stryker interim armored vehicle (IAV) into action, which would provide the SBCT with greater firepower and increased tactical mobility. Infrastructure projects would be needed to support this effort, including new vehicle washes and motor pools in which to park these vehicles. Construction of training facilities at various installations and land acquisitions would also be analyzed. See Table ES-1 for an overview of the proposed action. Table ES-2 provides a summary of SBCT training activities by installation.

If a substantial change to any specific project described in this EIS is made, as it moves forward, that may have a bearing on the Proposed Action or its impacts, additional appropriate NEPA documentation will be prepared, as required by NEPA.

SBCT training requirements are not dependent on the use of Makua Military Reservation (MMR). While the MMR is an integral part of USARHAW training capabilities and historically used by other services, SBCT units could perform dismounted CALFEX training at other ranges. SBCT may use MMR if the range were available only after completion of the Makua EIS and ROD. The Makua EIS will analyze the potential environmental impacts associated with dismounted CALFEXs for both Legacy Force and SBCT; therefore, this SBCT EIS does not analyze training impacts of SBCT at MMR.

ES.6 ALTERNATIVES ANALYZED

The alternatives analyzed must reasonably meet the purpose of and need for the action. Alternatives must also be practical and feasible; that is, they must be capable of being implemented by the Army or another agency, be technically feasible, and not require commitment of resources that cannot practically be obtained. In framing alternatives, the USARHAW has taken into consideration information and suggestions submitted by individuals, organizations, and public agencies. Also, each alternative, with the exception of the No Action Alternative, must meet the training needs required for an SBCT, as outlined in Table ES-3.

Table ES-1
Proposed Action, Reduced Land Acquisition, and No Action Alternatives Overview

	Proposed Action (Preferred Alternative)				Reduced Land Acquisition Alternative	No Action Alternative
	SBMR and Wheeler Army Airfield	**DMR**	**KTA/KLOA**	**PTA**		
Training						
Live-fire exercises	Live-fire exercises would continue.	None.	Live-fire SRTA[1] training introduced at the MOUT sites at KTA	Live-fire exercises would continue on existing lands, no live-fire on WPAA	Same as Proposed Action.	Live-fire exercises at SBMR and PTA as part of Legacy Force training would continue at current levels.
Vehicles used	Increase of 346 emission-producing vehicles to 1,005 vehicles (including 291 Strykers), which would be based at SBMR.[2]. Maneuvers at SRAA and SBER may involve from one to 96 vehicles.	Strykers used, 1 to 27 vehicles.	Strykers used, one to 200 vehicles.	Strykers used, 27 to 400 vehicles.	Same as Proposed Action.	659 emission-producing vehicles.
Off-road maneuver training (Stryker maneuvers)	Only in SRAA and SBER.	Maneuver training would continue.	Maneuver training would continue.	Maneuver training would continue.	Same as Proposed Action.	No Strykers would be used. Continued use of wheeled vehicles at SBMR, DMR, KTA, and PTA.
Weapons used	Legacy Force weapons plus 105mm cannon on Stryker mobile gun system and the 120mm mortar.	No change in weapons fired.	No change in weapons fired.	Legacy Force weapons plus 105mm cannon on Stryker mobile gun system and the 120mm mortar.	Same as Proposed Action.	Existing weapons would continue to be used.
Aircraft flights and UAVs	Normal Legacy Force operations of the aviation brigade would continue, plus USAF C-130 and C-17 operations in support of SBCT deployment. UAV flights in restricted airspace.	No new aircraft activity. UAV flights UAV flights in restricted airspace.	No new aircraft activity. UAV flights UAV flights in restricted airspace.	No new aircraft activity except UAV flights UAV flights in restricted airspace and USAF C-130 and C-17s to move units to PTA	Same as Proposed Action.	Continued flight support for Legacy Force training.
Troop transport	Trucks are used to move troops from SBMR cantonment to ranges; Strykers in a group of approximately 30 vehicles move troops on Battle Area Complex up to company level.	Troops transported from SBMR to DMR by Strykers or trucks, generally up to company level, plus support trucks.	Troops transported from SBMR to KTA/KLOA by Strykers or trucks; battalion to limited brigade level plus support trucks.	Troops would continue to be transported via aircraft or marine vessel from SBMR to PTA. Existing LSV and barge marine transport would change to 66 LSV and four barges. Troops would be transported from Kawaihae Harbor to PTA by Strykers or trucks, up to brigade level, in groups of 30 vehicles.	Same as Proposed Action.	No change in troop transport except for marine transport. Current transport includes an average of 60 individual LSV and four barge round trips per year.
Weapons/Ordnance Transport	No change from Legacy Force.	None.	None.	No change from Legacy Force.	Same as Proposed Action.	No change from Legacy Force.
Construction/Demolition						
Range complexes	Four new ranges built: QTR1, QTR2, Urban Assault Course, and Battle Area Complex.	No new ranges.	One mock city built, called the Combined Arms Collective Training Facility (two buildings demolished, S150, S151).	Two new ranges built: battle area complex (12 targets and 1 tower demolished) and the anti-armor range (1 tower demolished).	QTR2 would be built at PTA, not at South Range Acquisition Area.	Existing ranges may be upgraded or new ranges added as future conditions warrant.[3] Separate NEPA documents will be prepared, as necessary.
Airfield upgrade	Upgrade parking apron at Wheeler Army Airfield for C-130 operations.	None.	None.	Upgrade, extend, and reorient runway 5 degrees to support C-17 aircraft.	Same as Proposed Action.	No airfield upgrades.
Tactical vehicle wash	One tactical vehicle wash would be constructed.	None.	One tactical vehicle wash would be constructed.	One tactical vehicle wash would be constructed.	Same as Proposed Action.	None.
Installation information infrastructure architecture (I3A)	None.	None.	None.	I3A would be constructed.	Same as Proposed Action.	Projects may be constructed on a case-by-case basis. [3]
Training classrooms	Virtual Fighting Training Facility.	None.	None.	None.	Same as Proposed Action.	Projects may be constructed on a case-by-case basis. [3]
Range control facilities	Range Control Facility built (eight buildings would be demolished: 1124, 1125, 1150, 1181, 2108, 2056, 2276, 1192).	No new facilities.	No new facilities.	Range maintenance facility built (three buildings demolished: T17, T19, T20).	Same as Proposed Action.	Projects may be constructed on a case-by-case basis[3]
Support facilities	Motor pool maintenance shops and multiple deployment facility built.	None.	None.	Expand ammunition storage facility with three new ammunition storage facilities.	Same as Proposed Action.	Projects may be constructed on a case-by-case basis[3]
Antennas (fixed tactical internet)	Nine antennas built: seven at SBMR and two at SBER.	Three antennas built: two within DMR and one on Dillingham Ridge.	Two antennas built within KTA.	Ten antennas built within and surrounding PTA and one antenna at Kawaihae Harbor.	Same as Proposed Action.	No new antennas to be constructed. [3]
Road improvements	Construct a 15-foot- (5 meter-) wide one-lane gravel road from SBMR to Helemanō (7 miles).	Construct a 15-foot (4.6 meter)-wide (one-lane) gravel road from SBMR to DMR (15 miles). Telecommunication lines to be installed alongside the upgraded road.	None	Construct a 24-foot- (7–meter-) wide two-lane gravel road with a t 40-foot (12-meter) right of way from Kawaihae Harbor to PTA (27 miles [43kilometers]).	Same as Proposed Action.	None.
Land acquisition	Approximately 1,400 acres (567 hectares) (South Range Land Acquisition).	None.	None.	Approximately 22,675 acres (9,176 hectares) (WPAA).	Approximately 100 acres (40.5 hectares) at SBMR and approximately 22, 675 acres (9,180 hectares) at WPAA.	Land acquisitions may be conducted on a case-by-case basis.[3]
Easements	None.	Acquire a perpetual easement of 55 acres (22.3 hectares) (11 ac for new road.	Acquire a perpetual easement of 17 acres (6.9 hectares) for new road to HMR	Acquire a perpetual easement of 132 acres (53 hectares) for new road from Kawaihae Harbor to PTA.	Same as Proposed Action.	Land acquisitions may be conducted on a case-by-case basis.[3]
Personnel	Increase of 810 soldiers, with 502 spouses and 1,053 children[2].	No increase.	No increase.	No increase.	Same as Proposed Action.	3,438 soldiers (existing) and 3,008 predicted for future.

[1]Short Range Training Ammunition
[2]Soldiers and vehicles would be assigned to SBMR and would use training areas as noted.
[3]Appropriate NEPA documentation will be prepared as necessary.
Source: US Army 2002a

Table ES-2
Summary of Training Activities by Installation

	Proposed Action												No Action										
	Maneuver Acreage		Training on Land (Includes night training)						Aviation Training				Maneuver Acreage		Training on Land (Includes night training)						Aviation Training		
				Live-fire		Maneuver										Live-fire		Maneuver					
	Mounted	Dismounted	Highest Level Training	Weapons Qualification	Live-fire	Mounted	Dismounted	Maneuver-impact Miles	Airborne (Parachute Drops)	Rotary Wing	UAV Operations (Daylight)	C17/C130 Aircraft Operation	Mounted	Dismounted	Highest level Training	Weapons Qualification	Live-fire	Mounted	Dismounted	Maneuver-impact Miles	Airborne (Parachute Drops)	Rotary Wing	UAV Operations (Daylight)	C17/C130 Aircraft Operation
Training Area																							
SBMR																							
Main Post	0	1,235	Bde	☒	☒	☒	☒	0	▪	☒	☒	▪	0	1,235	Bde	☒	☒	☒	☒	0	▪	☒	☒	▪
SBER	1,917	1,917	Co	▪	▪	☒	☒	19,125	☒	☒	☒	▪	1,917	1,917	Co	▪	▪	☒	☒	16,740	☒	☒	☒	▪
WAAF	0	494[3]	n/a	▪	▪	▪	▪	0	▪	☒	☒	☒	0	494[3]	n/a	▪	▪	▪	▪	0	▪	☒	☒	☒
SRAA	1,300	1,300	Plt	☒	▪	☒	☒	25,855	▪	▪	▪	▪	0	0	Plt	▪	▪	▪	▪	▪	▪	▪	▪	▪
DMR	364	364	Co	▪	▪	☒	☒	4,335	▪	☒	☒	▪	364	364	Co	▪	▪	☒	☒	1,710	▪	☒	☒	▪
KTA	3,384	3,384	Bde	▪	☒[1]	☒	☒	13,772	☒	☒	☒	▪	3,384	3,384	Bde	▪	☒[1]	☒	☒	7,211		☒	☒	▪
KLOA[2]	0	5,064	Co	▪	▪	☒	☒	0	☒	☒	☒	▪	0	5,064	Co	▪	▪	☒	☒	0	▪	☒	☒	▪
PTA																							
PTA Main	18,000	72,671	Bde	☒	☒	☒	☒	25,855	☒	☒	☒	☒	18,000	72,671	Bde	☒	☒	☒	☒	13,659	☒	☒	☒	▪
WPAA	23,000	23,000	Bde	▪	▪	☒	☒	61,894	☒	☒	☒	▪	0	0		▪	▪	☒	☒	▪	☒	▪	▪	▪

Notes:
[1]SRTA only
[2]Mounted maneuver training would take place along Drum Road in transit to KTA.
[3]Although dismounted maneuver acreage is available, this training is not currently conducted at WAAF.
[4] Activities currently take place under lease arrangement.
Co = Company
Plt = Platoon
Bn = Battalion
Bde = Brigade
n/a = Not applicable
☒ = Activity occurs or will occur.
Note: RLA Alternative has the same training activities as the Proposed Action, with the exception of no live-fire weapons qualification at the SRAA.

Table ES-3
Comparison of Alternatives Considered To Requirements

		Alternative						
		1	2	3	4	5	6	7
Function	**Requirements for SBCT**	**No Action (Current Legacy Force Training)**	**Proposed Action (Preferred Alternative): Transform with New Facilities on Oʻahu and Hawaiʻi**	**Reduced Land Acquisition (Construct QTR2 at PTA)**	**Transform with Existing Facilities (No New Construction or Land Acquisition)**	**Transform with Maneuver Training on a Continental US Installation (Includes Maneuver Live-Fire Training)**	**Transform Using Other Existing Military Facilities in Hawaiʻi (e.g., Marine or Navy Bases)**	**Transform by Moving All Training to PTA**
Qualification training (fixed firing ranges)								
Sniper and machine gun training	355 days/year (RDP pp 7-25).	230 days/year does not meet requirements (RDP pp 7-25).	355 days/year does meet requirements (construct QTR1and QTR2 at SBMR).	355 days/year does meet requirements (construct QTR1 at SBMR.	230 days/year does not meet requirements (existing capacity per RDP pp 7-25).	Meets requirements 355 days/year (construct QTR 1 at SBMR).	Does not meet requirements.	Meets requirements. Would require replication of all SBMR ranges (including QTRs) at PTA.
M4/M16 qualification	281 days/year (RDP pp 7-10).	230 days/year does not meet requirements (RDP pp 7-10).	281 days/year does meet requirements (construct QTR1 and QTR2 at SBMR).	281 days/year does meet requirements (construct QTR1 at SBMR and QTR2 at PTA).	230 days/year does not meet requirements (RDP pp 7-25).	281 days/year does meet requirements (construct QTRs 1 and 2 at Schofield Barracks).	Does not meet requirements 0 days/year available; Marine Corps Base Hawaiʻi has one multipurpose small arms range, used by their forces (http://www.mcbh.usmc.mil/g3/g3rrkb.htm).	Meets requirements. Would require replication of all SBMR ranges (including QTRs) at PTA.
Virtual training	Virtual training is an essential element of Army Transformation.	Does not meet requirements VFTF[1] and FTI[2] not available; cannot conduct virtual training.	Meets requirements. Construct a VFTF and FTI.	Meets requirements. Construct a VFTF and FTI.	Does not meet requirements. VFTF and FTI not available; cannot conduct virtual training.	Meets requirements. Construct a VFTF and FTI.	Does not meet requirements Not available; no other service has comparable facility.	Meets requirements. Construct a VFTF and FTI at PTA.
Collective Training								
Urban combat training	230 days/year use of Combined Arms MOUT Training Facility (RDP pp 9-7).	Does not meet requirements. Existing MOUT assault course, grenade house, and 17-building MOUT does not meet standard (RDP pp. 7-65).	230 days/year does meet requirements. Split facility at KTA (live-fire CACTF) and SBMR (urban assault course).	230 days/year does meet requirements. Split facility at KTA (live-fire CACTF) and SBMR (urban assault course).	Does not meet requirements. Existing MOUT assault course, grenade house and 17-building MOUT do not meet standard (RDP pp 7-65).	230 days/year does meet requirements Split facility at KTA (live-fire CACTF) and Schofield Barracks (Urban Assault Course).	Does not meet requirements. Not available; no other service has comparable facilities.	230 days/year does meet requirements Would require construction of live-fire CACTF and UAC facility at PTA.
Anti-tank Missile (Javelin and TOW) training	Anti-armor live-fire and tracking range (RDP pp 7-39).	Does not meet SBCT requirements. None.	Meets requirements. Anti-armor live-fire and tracking range constructed at PTA.	Meets requirements. Anti-armor live-fire and tracking range constructed at PTA.	Does not meet requirements. None.	Does not meet requirements. No capacity to train additional SBCT units.	Does not meet requirements. Not available; no other service has comparable facilities.	Meets requirements. Anti-armor live-fire and tracking range constructed at PTA.
Collective live-fire training	241 days/year use of Battle Area Complex, Multipurpose Range Complex, Multipurpose Training Range (RDP pp 7-69).	Does not meet requirements. All collective live-fire ranges are nonstandard.	Meets requirements. Construct BAXs at SBMR and PTA.	Meets requirements. Construct BAXs at SBMR and PTA.	Does not meet requirements. All collective live-fire ranges are nonstandard.	Does not meet requirements. No capacity to train additional SBCT units.	Does not meet requirements. Not available; no other service has comparable facilities.	Meets requirements. Construct BAXs at PTA only.

[1]Virtual Fighting Training Facility
[2]Fixed Tactical Internet

ES.6.1 No Action Alternative

CEQ regulations state that an EIS must evaluate a No Action Alternative to serve as a benchmark against which the potential effects of actions can be evaluated. The No Action Alternative represents what would occur if the Army were not to carry out the Proposed Action.

Under the No Action Alternative, the Army would not undertake the proposed conversion of the 2nd Brigade to an SBCT in Hawai'i. The 2nd Brigade would continue to train and operate as a conventional light infantry force.

Legacy Force Vehicle and Weapon Systems

Vehicles and weapons used under the No Action Alternative would be similar to those in use now.

Construction

Construction projects under No Action assume that projects proposed for maneuver training facilities and USARHAW's inventory of facilities for an SBCT would not proceed. However, other projects in support of Legacy Force training could be constructed on a case-by-case basis, as dictated to meet the continuing needs of the Army's conventional forces. These projects would be evaluated under separate NEPA documentation.

Land Acquisition/Easements

None of the land acquisitions, which are part of the Proposed Action, would be undertaken. Land could be acquired in support of Legacy Force training on a case-by-case basis, as might be dictated to meet the continuing needs of historically conventional forces. For example, under No Action, some or all of the South Range Acquisition Area (SRAA) could be acquired for Legacy Force maneuver land requirements. While the acreage and precise locations are not now known, these projects would be evaluated in separate NEPA documents.

Description of Training

Under No Action, Legacy Force training is expected to continue and could include future changes in training. These changes could result in requirements for new weapons or new strategies as potential conflicts may dictate.

Institutional Programs

USARHAW has implemented the following institutional programs at all training areas: Integrated Training Area Management, an integrated natural resource management plan, an Integrated Cultural Resources Management Plan, a range development plan, institutional controls, and a real property management plan. Chapter 2 describes these programs in more detail. The Army would continue to fund these programs under the No Action Alternative, as funding is available, with the complexity and scope of the program proportional to the proposed land use.

ES.6.2 Proposed Action (Preferred Alternative)

Under the Proposed Action, the 2nd Brigade would be converted to an SBCT and, as such, would operate as part of the Army's Interim Force. Implementing the Proposed Action

would require taking several distinct but coordinated actions and activities directly associated with transforming the 2nd Brigade. These various actions that make up the Proposed Action would include fielding Stryker Systems, SBCT-specific weapons, building new facilities, acquiring new land and additional easements, and conducting SBCT-specific training. Chapter 1, Section 1.2, describes the overall transformation process in greater detail. This EIS analyzes only the conversion of the 2nd Brigade to an SBCT and not its ultimate conversion to the Objective Force; a separate NEPA analysis will be done for that next phase as appropriate.

Implementing the Proposed Action would require taking several actions and activities directly associated with transforming the 2nd Brigade and enhancing training capabilities. Table ES-1 compares the proposed projects for each alternative, and figures ES-1, ES-2, ES-3, and ES-4 show project locations for the Proposed Action and Reduced Land Acquisition.

In selecting specific construction projects to meet the training shortfall for SBCT and to minimize costs and impacts to the environment and communities, planners attempted to first use existing USARHAW lands and ranges where possible, to upgrade existing ranges and facilities, to build new ranges on existing training areas, and, if necessary, to acquire new training lands. Once project alternatives were developed, they were further evaluated and selected based on the following factors: the extent to which they provided mission support; the extent to which they minimized environmental impacts and contributed to environmental stewardship; their economic feasibility; and the extent to which they increased training productivity.

SBCT Systems Fielding

This element of the Proposed Action involves fielding new and modernized vehicles, weapons systems, and equipment for Interim Forces and, ultimately, the Objective Force, although there will be some upgrades, changes and additions.

Foremost among the new systems is the Stryker, an eight-wheeled, 22.9-foot- (7-meter-) long, 8.9-foot- (3-meter-) wide, 20-ton (18-metric-ton) combat vehicle that can be transported on the C-130 aircraft. Although there are ten variations of the Stryker, the primary design variants are the ICV and the mobile gun system (MGS). The ICV can carry nine soldiers and their equipment and requires a driver and a vehicle commander. The MGS would be mounted on the Stryker and would be modified to incorporate a 105mm turreted cannon and autoloader system with a crew of three. The actual vehicle used by SBCT may vary from the current Stryker vehicles as the system is developed, but overall will have the same characteristics as the current Stryker. (There are eight other configurations of the Stryker that could be used as part of the SBCT; information on the ICV, MGS, and the eight other Stryker variants is provided in Appendix C.)

Figure ES-1
Northern O'ahu Project Overview

Figure ES-2
Proposed Action at Schofield Barracks Main Post and Wheeler Army Airfield

Figure ES-3
Project Locations at Kahuku Training Area

Figure ES-4
Pōhakuloa Training Area Project Overview

The SBCT would be equipped with a tactical unmanned aerial vehicle (UAV) similar to the RQ-7A "Shadow 200" to provide day or night reconnaissance, surveillance, and target acquisition capability. The UAV would allow tactical commanders a view into heavily protected battle space that could not be penetrated by other intelligence assets or that presents a high risk to piloted aircraft. The aircraft weighs approximately 325 pounds, has a wingspan of 13 feet (4 meters), and measures 11 feet (3 meters) from nose to tail.

The number of barge trips per year would not change, however the logistic support vessels (LSV) trips would increase from 60 to 66 per year. A new high-speed vessel called a Theatre Support Vessel (TSV) may be used in the future, but it is in the early planning stages. Before it is fielded appropriate NEPA documentation will be completed as well as any Endangered Species Act or National Historic Preservation Act consultation that may be required.

The weapons proposed for the SBCT would be the same as currently used by Legacy Force units in 25th Infantry Division or the Hawai'i Army National Guard, with the exception of the MGS on the Stryker and the 120mm mortar.

Construction

Proposed construction includes building, modernizing, and remodeling buildings, training facilities (e.g., live-fire training facilities), and infrastructure and demolishing buildings and facilities. It also involves ground softening at the PTA Battle Area Complex (BAX) and Anti Armor Live-fire and Tracking Range (AALFTR) by using a D-10 bulldozer that would drive back and forth over areas on the ranges to crush lava, large rocks, and hard soil to provide a softer substrate for soldiers to train. Both of these ranges are constructed over existing ranges, so ground-softening activities would occur as needed on already heavily disturbed areas. The precise location and extent of ground softening would depend on final orientation of firing points and targets but is expected to be a fraction of the 2,825-acre (1,143-hectare) area of the two ranges. Locations of construction projects are provided in Table ES-1.

Land Acquisition/Easements

This part of the Proposed Action involves real property acquisition, which means negotiating temporary or permanent control of property for Army use, mainly through purchase, lease, or permit. Under the Proposed Action, two areas would be acquired and three easements would be obtained. The two acquisition areas would be the South Range Acquisition Area (SRAA) (approximately 1,400 acres [567 hectares]) at SBMR and the West PTA Maneuver Training Area Land Acquisition (approximately 23,000 acres [9,308 hectares]). The three easements for military vehicle trails would include the trails between SBMR and DMR (known as Dillingham Trail, 55 acres [22 hectares]), between SBMR and HMR (known as Helemanō Trail, 17 acres [6.9 hectares]), and between Kawaihae Harbor and PTA (known as PTA Trail, 132 acres [53 hectares]). While the Army would not own the underlying land, the easement is a property right to the land. See Appendix D for maps and more details on the land acquisition projects.

SBCT Training

The following subsections describe the SBCT training that would occur under the Proposed Action, with emphasis on the differences between SBCT training and the current Legacy Force training. Most of the nonlive-fire and other training that does not involve maneuvers

by SBCT forces would be similar to that currently being conducted by the 25th ID(L). As with Legacy Force training, exercises would continue to be at the squad through company level, with some opportunities for battalion and above training. Urban operations training is more highly emphasized in SBCT requirements than in Legacy requirements. The SBCT would use new urban warfare facilities extensively and would use helicopter landing and pickup zones. Nonlive-fire training also is conducted in classrooms, on rappel towers and obstacle courses, and in a variety of specialized facilities. Table ES-2 summarizes training by installation.

Although the most notable physical difference between Legacy Force and SBCT forces is the introduction of the Stryker vehicle, operations and capabilities would also radically change. The Stryker is primarily a troop transport vehicle that would traverse terrain and obstacles to ensure protected delivery of infantry squads to their dismount points. Because of the limitations of the Stryker, most mounted movement takes place on roads or unrestricted terrain. The Stryker can maneuver across a slope that is less than 30 percent, up a slope that is less than 60 percent, and over trees less than five inches (13 centimeters) in diameter. However, the Stryker would not be allowed in areas subject to other restrictions, such as rare species, cultural features, or other significant resources. The number of Strykers involved in training exercises would depend on the capacity of the training area involved. All 1,005 vehicles (including Strykers, trucks, HMMWVs, and other support vehicles) would be based at SBMR and would deploy for training when required. Mounted maneuver training at SRAA and SBMR would involve from one to 96 Strykers, one to 27 at DMR, one to 200 at KTA, and 27 to 291 at PTA. There would be no mounted maneuvers in KLOA, except along Drum Road.

Dismounted Maneuver Training

As described above, Strykers would rapidly transport troops to a predetermined action area. Once at that location the troops would conduct dismounted maneuvers to train for enemy engagement. At times, training may include only dismounted maneuvers without the Stryker. During dismounted maneuvers soldiers would walk in dispersed groups overland toward a given objective. During simulated engagement, soldiers would seek cover or concealment, and one section may provide a base of weapons fire, while another maneuvers toward the objective.

During extended maneuver training, soldiers may sleep in the field. To avoid detection and to allow for quick displacement, they would not set up tents. Training may involve live-fire and nonlive-fire exercises. Nonlive-fire exercises use blank ammunition, laser weapons, and simulated artillery and mortar fire with pyrotechnics. During nonlive-fire training there would be no smoking and no aerial pyrotechnics. Helicopters may be used and would use established landing zones.

Reconnaissance Training

Reconnaissance training would be carried out in a similar manner as Legacy Force reconnaissance training, except that UAVs would provide air reconnaissance that, in combination with ground reconnaissance, would provide situational awareness and knowledge throughout a larger area. The Stryker may be used in some situations as a support vehicle for reconnaissance training.

It is anticipated that the UAV's total flying hours would amount to 2,400 hours of flight per year (4 UAVs at 600 hours per year), or 600 takeoffs and landings per year.

Live-Fire Training

The transformed brigade would use new and existing live-fire ranges and firing points. SBCT units would perform individual weapon and combined arms live-fire training. Use of pyrotechnics, obscurants, SRTA, and simulators is anticipated to be similar to Legacy Force use. Unless or until amended, all SBCT training would be planned and conducted in accordance with established USARHAW range and training land regulations and standard operating procedures (SOPs). SBCT would use the same weapons and explosives as the Legacy Force, with the addition of the 105mm cannon. No live-fire training would be conducted at WAAF, KLOA, DMR, or on the West PTA Acquisition Area (WPAA).

Deployment Training

Deployment training would principally involve moving troops and equipment from SBMR to the other training areas in Hawai'i or to the continental US. As with Legacy Force training, transportation would use a combination of vehicles, vessels, and C-17 and C-130 aircraft, depending on the type and location of training. Deployment training would be similar to the Legacy Force, except SBCT units would be deployed at least twice a year to PTA from Hickam Air Force Base or Wheeler Army Airfield (WAAF) using C-17 or C-130 aircraft. Equipment would be deployed to PTA by 66 individual LSV and four barge round trips a year. There are no adequate facilities to support deployment activities from multiple airfields in Hawai'i. The proposed Multiple Deployment Facility would provide the facilities necessary for SBCT to prepare equipment and vehicles for deployment from either WAAF or HAFB.

Aviation Training

The number and types of aircraft used for aviation training are expected to be the same as under Legacy Force training, with the exception of UAVs. There is no anticipated change under an SBCT in the frequency or times of operations of most aircraft, except UAVs. Their individual use and frequency has yet to be determined, as it would be dictated by each individual training scenario.

Combined Live-Fire/Maneuver Training

SBCT forces would conduct dismounted training to include company-level combined arms live-fire exercises (CALFEX). The only increase in CALFEXs would be from the introduction of the reconnaissance, surveillance, and target acquisition squadron, which could conduct up to three company CALFEXs per year. The SBCT dismounted CALFEXs would be similar to the CALFEXs conducted by the Legacy Force, using the same types of weapons and similar tactics. SBCT dismounted live fire CALFEX training would occur at the SBMR BAX, PTA BAX, and possibly MMR. However, priority will be given for mounted training at PTA BAX, offering limited opportunity for dismounted training.

SBCT training requirements are not dependent on the use of Makua Military Reservation (MMR). While the MMR is an integral part of USARHAW training capabilities and historically used by other services, SBCT units could perform dismounted CALFEX training at other ranges. SBCT may use MMR if the range were available only after completion of the Makua EIS and ROD. The Makua EIS will analyze the potential environmental impacts

associated with dismounted CALFEXs for both Legacy Force and SBCT; therefore, this SBCT EIS does not analyze training impacts of SBCT at MMR.

Force-on-Force Training

There would be no change in force-on-force training activities under the Proposed Action except for the nonlive-fire training at WPAA. However there would be additional organizations such as the RSTA Squadron and CSS Company that would support the force on force units. Force-on-force training would still occur at SBMR, KTA, and existing PTA installations.

Service Support Operations and Training

There would be no change in service support operations and training under the Proposed Action. Training would be carried out in a manner similar to Legacy Force training.

Institutional Programs

Total Army transformation also affects installation management. Installation Programs that directly affects the environment includes range management, environmental management, and real property management. The following programs will be implemented as part of the Transformation process: Sustainable Range Program, Impact Area Management, Environmental Management System, Environmental Management Programs, and Alternative Procedures for Cultural Resources Management.

ES.6.3 Reduced Land Acquisition Alternative

This alternative is identical to the Proposed Action, with two exceptions, moving Qualification Training Range 2 (QTR2) to PTA and reducing land acquisition at the SRAA (Figure ES-5). This alternative would involve downsizing the proposed SRAA by approximately 93 percent, from approximately 1,400 acres (567 hectares) to approximately 100 acres (41.5 hectares), which would be necessary within the SRAA for construction of the proposed SBCT Motor Pool because the motor pool must be located close to SBMR where the soldiers are based and there is no space is available for building this facility at SBMR or WAAF. This would require that an expanded version of QTR2 be constructed at PTA rather than at the home station, SBMR. This is contrary to current training of the 25th Infantry Division, which is based on troops completing qualification training at SBMR before deploying to PTA. The larger exercises conducted at PTA are more effective if each soldier is fully qualified at SBMR before deploying to PTA. However, the length of deployment at PTA could be extended to allow training at QTR2 before other training is conducted at PTA. Soldiers not able to qualify during deployment would have to return to PTA to complete their qualifications. The best available site for the proposed QTR2 at PTA is on the site of the current Range 8. This location falls within the overall boundaries of the anti-armor and live-fire tracking range (AALFTR) also proposed for this site, meaning that both ranges could not be used for live-fire at the same time. An expanded version of QTR2, to include sniper and machine gun training, as well as pistol and M16, would be constructed at PTA, overlying the proposed AALFTR, so no new area would need to be used or ordnance impact area created. Although the purpose and need for USARHAW transformation would still be fulfilled, it would not be as efficient, and in some circumstances not every soldier would become qualified on individual weapons before arrival at PTA. This would detract

Figure ES-5
South Range Acquisition Area

from the effectiveness of the large-unit training conducted there and would require additional training.

ES.7 ALTERNATIVES CONSIDERED BUT NOT STUDIED IN DETAIL

Several factors contributed to the development of alternatives available to USARHAW. First, any alternative must meet the purpose of and need for the action by assisting to bring the Army's Interim Force to operational capability and by providing realistic field training in Hawai'i while providing the nation with capabilities that meet current and evolving national defense requirements. Alternatives must be practical and feasible; that is, they must be capable of being implemented by the Army or another agency, be technically feasible, and not require commitment of resources that cannot practically be obtained. In addition, in framing alternatives, USARHAW has taken into consideration information and suggestions submitted by individuals, organizations, and public agencies. Finally each alternative, with the exception of the No Action Alternative, must meet the training needs required for an SBCT. Table ES-3 compares each alternative to the training requirements for an SBCT.

ES.7.1 Transformation of a Different Brigade at Another Location

The Army has identified the first units to be converted to Interim Force status as the "bridge" to the Objective Force. HQDA directed the action proposed for implementation by the 2nd Brigade, the effects of which have been evaluated by the Army's headquarters. Section 4.2.2 of the final *Programmatic Environmental Impact Statement for Army Transformation* states, "The Army's operating forces are stationed at those installations that can provide adequate facilities (maneuver areas and training facilities) and infrastructure support. For the foreseeable future, the Army would expect to conduct its transformation of existing operating forces 'in-place.' Relocation of units would not be expected." The long-term view is that the entire Army would transform. In the short-term, as indicated by the ROD for the programmatic EIS, converting units to the Objective Force would be sequenced as directed by HQDA. The initial sequencing includes the conversion of the 2nd Brigade.

The Pacific Rim is a critical area of interest for the United States. Stationing an SBCT in Hawai'i allows the President to rapidly respond to events in an area of increasing importance to national security. This alternative does not meet that purpose and need and is not included in Table ES-3.

ES.7.2 Transformation with Existing Facilities

Under this alternative the Army would attempt to transform but would rely on existing facilities. USARHAW would propose and undertake military construction projects one project at a time so as to maintain training resources in an acceptable useful condition for continued Legacy Force training as SBCT moves towards the Objective Force. Projects not associated with transformation could continue to be funded and programmed (e.g., family housing improvements or in-kind replacement of deteriorated facilities). Those associated with transformation would have to be funded on a piecemeal basis and separate NEPA documentation would have to be prepared as each project is identified. Training would continue using existing maneuver and training facilities, under constraints similar to those now managed by unit commanders and would use new facilities as they are constructed.

The principal differences between the current Legacy Force and the SBCT would be an increase in the number of personnel, introduction of the Stryker, increase in live fire training, and modification of the training requirements to guide the unit's readiness training. Current facilities would not accommodate the needs of an SBCT, such as sufficient maneuver training land for the Stryker and automated digitally capable ranges and training facilities.

The Army seeks to have the 2nd Brigade reach its initial operational capability (IOC), that is, to be capable of executing assigned combat missions, in 2007. This would occur after Strykers, MGSs, and UAVs have been fielded and the soldiers in the 2nd Brigade have demonstrated their ability to execute their assigned tasks, individually and collectively. IOC cannot be attained without the appropriate types of modernized training facilities with adequate capacity to train individual soldiers and units available. As shown on Table ES-3, the existing facilities do not have the ability to provide specific training, such as virtual training with a fixed tactical internet (FTI) and antitank missile training. Furthermore shortcomings in capacity and capability of live-fire and simulation training facilities would make it impossible to train the soldiers of the SBCT to the Army standard. Reduced training time would mean that fewer soldiers were qualified on their individual weapons systems and that elements of the brigade would not be trained in their collective tasks. This alternative would not meet the purpose and need of the project.

ES.7.3 Transformation in Hawai'i with Maneuver Live-Fire and Nonlive-Fire Training on the Continental US Instead of Hawai'i

Under this alternative, the Army would transform by conducting collective live-fire and maneuver training on a continental US installation. All proposed cantonment facilities required to support an SBCT would be built, but no new collective maneuver ranges (nonlive-fire and live-fire) would be constructed. The Army would not acquire the 23,000-acre (9,308 hectare) WPAA adjacent to PTA. In addition the following projects would not be built in Hawai'i under this alternative because they are tied to the relocated maneuver training:

- The battle area complexes at SBMR and PTA;
- The Combined Arms Collective Training Facility (CACTF) with SRTA live-fire training at KTA;
- The Urban Assault Course (UAC) at SBMR; and
- The Anti-Armor Live-Fire and Tracking Range at PTA.

QTR1 and QTR2 would still be constructed, and the SRAA would still be needed to provide space for QTR2 and the SBCT motor pool. Both QTRs would be needed to provide day-to-day training of soldiers on their individual weapons. The Virtual Flight Training Facility (VFTF) to be built at SBMR is a key element of the training requirements for an SBCT because their suite of simulators and specialized training equipment are an integral part of the transformation process.

The Army considered ranges west of the Mississippi River, to minimize travel time, and those with large enough land areas. Continental US Army installations considered as potential sites for 2nd Brigade live-fire and maneuver training include Fort Richardson and

Fort Wainwright and the Donnelly Training Area in Alaska (considered as one installation for this analysis and collectively called US Army, Alaska [USARAK]), Fort Lewis and Yakima Training Center in Washington State (considered a single installation and referred to as Fort Lewis), the National Training Center at Fort Irwin in California, Fort Carson and Piñon Canyon Training Area in Colorado (considered as one installation and referred to as Fort Carson), Fort Hood in Texas, Fort Riley in Kansas, and Fort Polk in Louisiana. These are the major Army installations in the western US devoted to training US Army Forces Command units. Table ES-4 provides an overview of the installations.

Table ES-4
Continental US Army Installations Considered

Installation, State	Total Area (acres)	Current Mission	SBCT Required Facilities Available?
Fort Richardson Fort Wainwright Donnelly Training Area, Alaska	71,441 (28, 923 hectares) 656,241 (265.684 hectares) 640,488 (259,290 hectares)	Home to 172nd Infantry Brigade; programmed for one SBCT.	Will be constructed.[1]
Fort Lewis Yakima Training Center, Washington	86,174 (34,888 hectares) 316,786 (128,253 hectares)	Home to I Corps, 1st Brigade of the 25th ID(L), and the 3rd Brigade of the 2nd Infantry Division. Programmed for two SBCTs.	Will be constructed.[1]
National Training Center at Fort Irwin, California	636,251 (257,591 hectares)	National Training Center—desert training of heavy Army forces.	No
Fort Carson Piñon Canyon Maneuver Site, Colorado	137,404 (55,629 hectares) 235,896 (95,504 hectares)	Home to 7th Infantry Division (mechanized).	No
Fort Hood, Texas	214,352 (86,782 hectares)	Home to III Corps, 1st Cavalry Division, 4th Infantry Division (mechanized).	No
Fort Riley, Kansas	100,656 (40,751 hectares)	Home to the 24th Infantry Division (mechanized).	No
Fort Polk, Louisiana	198,143 (80,220 hectares)	Home of the Joint Readiness Training Center and 2nd Armored Cavalry Regiment.	Will be constructed.[1]

[1]Facilities of the type used to train an SBCT will ultimately be built at all major Army training installations as part of Transformation to the Objective Force, except the AALFTR (which is specifically designated for Hawai'i).

Source: Acreage from Table C-8, US Army 2002c

In Table ES-4, "total area" is the land area in acres occupied by each military reservation. Ranges, environmental constraints, cantonment areas, and other factors, such as regulatory requirements and access, reduce actual lands available for training at each installation. "Current mission" describes the major functions of each installation. As indicated in the last column of the table, USARAK, Fort Lewis, and Fort Polk are undergoing transformation to receive SBCTs; one will be stationed in USARAK, two at Fort Lewis and one at Fort Polk. The specialized ranges, as well as the MSTF, VFTF, FTI, and installation information infrastructure architecture (I3A) projects required for SBCT training are already programmed

to be built at these installations. The other installations may eventually receive similar facilities as transformation to the Objective Force occurs over the next 30 years, but at present forts Irwin, Riley, Hood, and Carson are not capable of providing the specialized training an SBCT requires, and there are no plans to construct the required facilities at those installations.

Table ES-4 shows that, of the six installations considered, only USARAK, Fort Lewis, and Fort Polk will have the facilities required to train a Stryker brigade; therefore, the others are excluded from further consideration.

If the 2nd Brigade is to train at either of these installations, all the people, equipment, and vehicles associated with each element of the brigade would have to be transported to Alaska or Washington. This would be required to ensure that the soldiers could train with their own equipment in accordance with Army doctrine. In addition equipment belonging to the Stryker brigades in Alaska and Washington cannot be assumed to be available for use by Hawai'i personnel. While it is possible to move equipment by barge from O'ahu to the island of Hawai'i, Alaska and Washington are too far away for this type of transport to be practical, and the equipment and personnel would need to be airlifted. Military Traffic Management Command's Traffic Engineering Agency estimated in December 2000 at least 79 C-5 aircraft and 110 C-17 aircraft would be required to move one Stryker brigade (USARHAW 2001a) effectively removing over 80 percent of the Air Forces transport capabilities during training of one SBCT. The Air Force will receive the last of its 120 C-17 aircraft in November 2004 and has 109 C-5 aircraft, with no more coming. Only 6 C-17 are proposed to be stationed in Hawai'i and will replace 4 C-130s currently stationed in Hawai'i.

Even though the entire brigade may not need to be transported at one time, moving even one rifle battalion would tie up a substantial portion of the Air Force's airlift capability for an extended period of time. Air Force airlift support would be unavailable for other uses, including actual wartime deployments of the force. Aside from the substantial costs of such operations, it is impractical to expect the Air Force to commit so large a percentage of its resources to support a training exercise.

USARHAW staff estimates that preparation prior to and after each deployment would take five days total. Flight times are estimated at six hours each way. Assuming that maneuver training is to be conducted four times per year, approximately 40 training days of the available 270 would be lost during deployments to Alaska or Washington.

An analysis of USARAK and Fort Lewis training facilities and capacity was conducted as an appendix to the USARHAW RD Plan. It showed that Fort Lewis and USARAK would lack adequate collective live-fire training facilities to support an additional SBCT. Neither USARAK nor Fort Lewis is proposing to build an anti-armor live-fire and tracking range to provide the capacity for training that has been programmed for Hawai'i. The Army proposes to conduct anti-armor live-fire training at these facilities on ranges constructed for other uses. This requires careful scheduling to avoid conflicts, and adding an additional SBCT would reduce the throughput capacity to unacceptable levels. Because Fort Polk will already be training an SBCT unit, as well as conducting joint readiness training, the addition of a

second SBCT would compromise Fort Polk's capacity to train their soldiers, a situation that is considered unacceptable.

Owing to climate limitations, training can be conducted only 205 days per year at Fort Wainwright and 224 days per year at Fort Richardson, weather permitting, whereas training in Hawai'i can be conducted 270 days per year. This limitation of training for the SBCT to be stationed in USARAK is considered an acceptable compromise when taken as a part of the Army's overall stationing strategy. However, if the SBCT proposed for stationing in Hawai'i were limited to training only when weather allowed in Alaska, the SBCT's ability to train its units could be diminished, as USARAK's forces would have priority.

In addition, if wartime situations required deploying Hawai'i's SBCT while training on the continental US, the SBCT forces would need to return to Hawai'i for full deployment, making it impossible to meet the 96-hour deployment goal.

In summary, the alternative of conducting collective live-fire training of the 2nd Brigade of the 25th Infantry Division on continental US installations is not feasible or practical for the following reasons and as such will not meet the purpose and need of the project.

- The Hawai'i-based SBCT could not meet its training requirements using facilities at Forts Irwin, Hood, Riley, and Carson due to the lack of specialized facilities required to train an SBCT, and at present there are no plans to construct them;
- The Hawai'i-based SBCT could not meet its training requirements at Fort Lewis and USARAK, which are also to receive SBCTs, because they would not have adequate collective live-fire training capacity to support the requirements of an additional SBCT;
- Transporting a Hawai'i-based SBCT to the continental US for training would consume an unacceptably large portion of the Air Force's strategic airlift capability needed to meet its other missions and would result in a loss of at least 28 training days while in transit; and
- If an SBCT were training at either USARAK or Fort Lewis and military actions required its deployment to an action area, the brigade would have to return to Hawai'i to assemble for full deployment. This would prevent the SBCT from meeting its goal to deploy worldwide within 96 hours.

ES.7.4 Transformation Using Other Existing Military Facilities and Existing USARHAW Facilities in Hawai'i

Under this alternative the Army would attempt to transform relying on existing facilities at USARHAW and other military facilities in Hawai'i not under USARHAW's control. Other branches of the Armed Forces in Hawai'i train at existing Army facilities because they do not have adequate live-fire ranges themselves. In addition there are no additional maneuver lands available at other bases in Hawai'i.

The Army seeks to have the 2nd Brigade obtain IOC in 2007. This would occur after the unit receives its required Strykers and MGSs and the training necessary to execute its mission. Adequate facilities are required to effectively train to Army-established IOC standards. IOC

cannot be attained without the appropriate types of modernized training facilities with adequate capacity to train individual soldiers and units available. Limited facilities would result in reduced training time, which would mean that fewer soldiers would be qualified on their individual weapons systems and that elements of the brigade would not be trained in their collective tasks. Shortcomings in capacity and capability of live-fire and simulation training facilities for individual and crew-served weapons, including the lack of a shoothouse, mock villages, and other modernized training facilities, would make it impossible to train the soldiers of the SBCT to the Army standard.

ES.7.5 Transforming by Moving All Training to PTA

Under this alternative the Army would attempt to transform by moving all SBCT training to PTA. USARHAW would propose and construct all military construction projects and would also construct new barracks, unit headquarters, classrooms, simulation training facilities, family housing, qualification training ranges, and community support facilities on the island of Hawai'i. All training requirements for SBCT could be met, with the exception of the maneuver training, as approximately 15,219 acres (6162 hectares) of maneuver lands on O'ahu would not be available or acquired for use. However, a substantial amount of land would need to be acquired to accommodate all the new support facilities required for this alternative, essentially everything that now exists on SBMR and WAAF. Aside from the enormous cost, PTA lacks sufficient water, electric power, sewage treatment capability, and road access to support the required population. In addition construction of all these support facilities would eliminate additional maneuver lands, further increasing the shortfall for maneuver lands.

The Army seeks to have the 2nd Brigade obtain IOC in 2007. This would occur after the unit receives its required Strykers and MGSs and the training necessary to execute its mission. IOC cannot be attained without the proper types of facilities being readily available and having adequate capacity for training the requisite number of units. Although enough land may be available for acquisition for maneuver training and the required construction of an entire new military installation, SBCT soldiers would not be able to conduct air deployment training operations between SBMR and PTA. Table ES-3 has a comparison of all alternatives to the training requirements for an SBCT. In the absence of adequate maneuver training, soldiers would not be adequately trained for deployment.

This alternative is not feasible even though the training requirements for an SBCT would be met because the infrastructure at PTA could not handle the housing and other needs of stationing the SBCT at PTA. This would require substantial travel between housing at O'ahu and training at PTA resulting in lost training days. Therefore, this alternative was not evaluated in detail in the EIS.

ES.8 ENVIRONMENTAL ANALYSIS

The environmental analysis evaluates the potential environmental consequences associated with the Proposed Action, Reduced Land Acquisition Alternative, and No Action. Only those environmental and socioeconomic conditions relevant to the Proposed Action are presented, including land use and recreation, visual resources, airspace, air quality, noise, traffic, water resources, geology, soils, and seismicity, biological resources, cultural resources,

human health and safety hazards, socioeconomics and environmental justice, and public services and utilities.

The evaluation of potential impacts on any given resource were based on the project potential to conflict with existing laws and regulations, and effects on specific resource components as described in Chapter 4. A specific set of criteria was used for each resource to make a significance determination. Based on this analysis each impact was identified as significant, or having a significant impact on the resource, or less than significant, having an impact but to a less than significant level. For each significant impact specific mitigation measures were identified, where possible, that when implemented would reduce the impacts to less than significant: these are identified as significant impacts mitigable to less than significant.

ES.8.1 Affected Environment Overview

Chapter 3, Affected Environment Overview, provides the general baseline physical, biological, social, and economic conditions that occur within the region of influence (ROI) of the Proposed Action. As applicable, each section gives a background on how the resource is related to the Proposed Action, a general overview of relevant legislative requirements governing the resource, followed by any standard operating procedures the Army maintains to protect the resource. The remainder of the section discusses the general conditions of the resource within the ROI.

ES.8.2 Environmental and Socioeconomic Consequences

Chapter 4, Environmental and Socioeconomic Consequences Overview, describes the impact methodology and factors considered for impact analysis, which are used to determine the level of significance of potential environmental impacts. It also presents a summary of the overall potential environmental impacts of the Proposed Action, the Reduced Land Acquisition Alternative, and No Action when projects at all of the military installations are considered together. Table ES-5 summarizes the impact levels to environmental and socioeconomic resources at each installation for the alternatives.

The summary of impact levels to environmental and socioeconomic resources is based on the analysis of the Proposed Action, Reduced Land Acquisition, and No Action done for each installation (SBMR, DMR, KTA, and PTA) in Chapters 5 through 8. In these chapters, installation-specific environmental conditions for each of the project areas are discussed and the potential environmental impacts of the Proposed Action, Reduced Land Acquisition, and No Action are identified. For each impact, a determination has been made as to whether it would be significant or less than significant. Mitigation measures are identified for any impacts determined to be significant. Beneficial impacts are identified where applicable. There may be both adverse and beneficial impacts within a single resource category; for instance, a project could interfere with a pre-existing land use such as agriculture (an adverse impact) while expanding public access to recreational resources (a beneficial impact).

Tables ES-6 and ES-7 provide a list of environmental impacts by specific SBCT project and resource category. This gives the public and reviewers a more detailed evaluation of impacts deriving from specific SBCT-related actions.

Table ES-5
Summary of Impact Levels from the Proposed Action, Reduced Land Acquisition, and No Action

Impact Issue	SBMR			DMR			KTA			PTA			Project-Wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Land use	⊗	⊙	○	⊙	⊙	○	⊗	⊗	○	⊙+	⊙+	○	⊗+	⊗+	○
Visual resources	⊘	⊘	○	⊘	⊘	○	⊙	⊙	○	⊘	⊘	○	⊘	⊘	⊙
Air space	○	○	○	○	○	○	○	○	○	⊙	⊙	○	⊙	⊙	○
Air quality	⊗	⊗	⊙	⊗	⊗	⊙	⊗	⊗	⊙	⊗	⊗	⊙	⊗	⊗	⊙
Noise	⊗*	⊗*	⊗	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊙	⊗	⊗	⊗
Traffic	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙+	⊙+	○	⊙+	⊙+	○
Water resources	⊘	⊘	⊙	⊙+	⊙+	⊙	⊘	⊘	⊘	⊙	⊙	⊙	⊘+	⊘+	⊘
Geology and soils	⊗	⊗	⊘	⊗	⊗	⊘	⊗	⊗	⊘	⊗	⊗	⊘	⊗	⊗	⊘
Biological resources	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊗	⊗	⊘
Cultural resources	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	○	⊘	⊘	⊙
Human Health & Safety Hazards	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	⊙
Socioeconomics	⊘+	⊘+	○	⊙+	⊙+	○	⊙+	⊙+	○	⊘+	⊘+	○	⊘+	⊘+	○
Utilities	⊙	⊙	○	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○

This table summarizes project-wide impacts. For installation-specific impacts see Chapters 5 through 8.

In cases when there would be both beneficial and adverse impacts, both are shown on this table. Mitigation measures would only apply to adverse impacts.

* The PA and RLA for SBMR would have a minor increase in noise impacts over the NA. The determination of significance is based on existing NA levels.

LEGEND:

PA = Proposed Action
RLA = Reduced Land Acquisition
NA = No Action
⊗ = Significant impact
⊘ = Significant but mitigable to less than significant impact
⊙ = Less than significant
○ = No impact
\+ = Beneficial impact
N/A = Not applicable

Table ES-6
SBCT Project Impacts under Proposed Action

1391 Project #	SBCT Project Title	Location	Land Use	Visual Resources	Airspace	Air Quality	Noise	Traffic	Water Resources	Geology and Soils	Biological Resources	Cultural Resources	Human Health & Safety Standards	Socioeconomics/EJ	Utilities
		SBMR/WAAF													
58143	Urban Assault Course and Training Facilities	Main Post	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊘	○+	⊙+
57404	Virtual Fighting Training Facility	Main Post	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○+	⊙+
56923	Range Control Facility	Main Post	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	⊙	⊘	○+	⊙+
58144	Battle Area Complex	Main Post	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊘	⊘	⊘	○+	⊙+
57421/ 58925	Motor Pool Maintenance Shops	Main Post	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙+	⊙+
57416	Tactical Vehicle Wash Facility	East Range	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙
N/A	Fixed Tactical Internet	Main Post	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊙	○	+
55270	South Range Land Acquisition	SRAA	⊙	○	○	○	○	○	○	○	⊙	○	⊘	○	○
57461	Qualification Training Range, QTR1	Main Post	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊘	○+	⊙+
57462	Qualification Training Range, QTR2	SRAA	⊗	⊘	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	○+	⊙+
57422	Multiple Deployment Facility	WAAF	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙+	⊙
57405	Upgrade Airfield for C-130 Aircraft	WAAF	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	○	⊙	⊙+	⊙
N/A	SBCT Training	SBMR	⊙	⊙	○	⊗	⊗	⊙	⊘	⊗	⊘	⊘	⊘	⊙	⊙
57406	Road Construction, Schofield to Helemanō	Helemanō	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙+	⊙
57802	Land Easement, Schofield to Helemanō	Helemanō	○	○	○	○	○	○	○	○	⊙	○	○	○	○

Table ES-6
SBCT Project Impacts under Proposed Action

1391 Project #	SBCT Project Title	Location	Land Use	Visual Resources	Airspace	Air Quality	Noise	Traffic	Water Resources	Geology and Soils	Biological Resources	Cultural Resources	Human Health & Safety Standards	Socioeconomics/EJ	Utilities
		Dillingham													
58161	Land Easement/Construct Road, SB/DMR	Dillingham	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙+
N/A	Fixed Tactical Internet	Dillingham	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	○	⊙	○+	○+
N/A	SBCT Training	Dillingham	⊙	⊙	○	⊗	⊙	⊙	⊙+	⊗	⊘	⊘	⊙	⊙	⊙
		KTA/KLOA													
57415	Tactical Vehicle Wash Facility	Kahuku	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙
57305	Combined Arms Collective Training Facility	Kahuku	⊗	⊘	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊙+	⊙+
	Fixed Tactical Internet	KTA	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	○	⊙	○+	○+
N/A	SBCT Training	KTA/KLOA	⊙	⊙	○	⊗	⊙	⊙	⊘	⊗	⊘	⊘	⊘	⊙	⊙
		PTA													
57197	Battle Area Complex	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊙+	⊙+
57183	Antiarmor Live-fire and Tracking Range	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊙+	⊙+
58273	Construct Military Vehicle Trail, PTA-Kawaihae	Pōhakuloa	⊙	⊘	○	⊙	⊙	⊙+	⊙	⊘	⊘	⊘	⊘	⊙+	⊙
58273	Land Easement for Military Vehicle Trail, PTA-Kawaihae	Pōhakuloa	⊙	○	○	○	○	○	○	○	⊙	○	○	○	○
57417	Ammunition Storage	Pōhakuloa	⊙	⊙	○	⊙	⊙	○	○	○	⊘	⊙	⊙	⊙+	⊙+

Table ES-6
SBCT Project Impacts under Proposed Action

1391 Project #	SBCT Project Title	Location	Land Use	Visual Resources	Airspace	Air Quality	Noise	Traffic	Water Resources	Geology and Soils	Biological Resources	Cultural Resources	Human Health & Safety Standards	Socioeconomics/EJ	Utilities
57414	Tactical Vehicle Wash Facility	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙+	⊙
57411	West PTA Maneuver Training Area Land Acquisition	Pōhakuloa	⊙+	○	○	○	○	○	○	⊙	⊙	⊘	○	○	○
56994	Range Maintenance Facility	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘		⊙
57408	Runway Upgrade/Extension, Bradshaw AAF	Pōhakuloa	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙		⊙
N/A	Fixed Tactical Internet	Pōhakuloa	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊙		○+
N/A	Installation Information Infrastructure Architecture	Pōhakuloa	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙		○+
N/A	SBCT Training	Pōhakuloa	⊙	⊙	○	⊗	⊘	○	⊘	⊗	⊘	⊘	⊘		⊙

In cases when there would be both beneficial and adverse impacts, both are shown on this table. Mitigation measures would only apply to adverse impacts.

LEGEND:

PA = Proposed Action
RLA = Reduced Land Acquisition
NA = No Action
⊗ = Significant impact
⊘ = Significant but mitigable to less than significant impact
⊙ = Less than significant
○ = No impact
\+ = Beneficial impact
N/A = Not applicable

Table ES-7
SBCT Project Impacts under RLA Alternative

1391 Project #	SBCT Project Title	Location	Land Use	Visual Resources	Airspace	Air Quality	Noise	Traffic	Water Resources	Geology and Soils	Biological Resources	Cultural Resources	Human Health & Safety Standards	Socioeconomics/EJ	Utilities
		SBMR/WAAF													
58143	Urban Assault Course and Training Facilities	Main Post	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊘	○	⊙+
57404	Virtual Fighting Training Facility	Main Post	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	○	⊙+
56923	Range Control Facility	Main Post	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊘	○	⊙+
58144	Battle Area Complex	Main Post	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊘	⊘	⊘	○	⊙+
57421/ 58925	Motor Pool Maintenance Shops	Main Post	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊗	⊙+	⊙+
57416	Tactical Vehicle Wash Facility	East Range	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙
N/A	Fixed Tactical Internet	Main Post	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊙	○	○+
55270	South Range Land Acquisition	SRAA	⊙	○	○	⊙	⊙	○	○	○	⊙	○	⊙	○	○
57461	Qualification Training Range, QTR1	Main Post	⊙	⊘	○	○	○	⊙	⊙	⊙	⊘	⊘	⊘	○+	⊙+
57422	Multiple Deployment Facility	WAAF	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊙+	⊙
57405	Upgrade Airfield for C-130 Aircraft	WAAF	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊙	⊙+	⊙
N/A	SBCT Training	SBMR	⊙	⊙	○	⊗	⊗	⊙	⊘	⊗	⊘	⊘	⊘	⊙	⊙
57406	Road Construction, Schofield to Helemanō	Helemanō	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙
57802	Land Easement, Schofield to Helemanō	Helemanō	○	○	○	○	○	○	○	○	⊙	○	⊙	○	○

Table ES-7
SBCT Project Impacts under RLA Alternative

1391 Project #	SBCT Project Title	Location	Land Use	Visual Resources	Airspace	Air Quality	Noise	Traffic	Water Resources	Geology and Soils	Biological Resources	Cultural Resources	Human Health & Safety Standards	Socioeconomics/EJ	Utilities
		Dillingham													
58161	Land Easement/Construct Road, SB/DMR	Dillingham	⊙	⊘	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙+
N/A	Fixed Tactical Internet	Dillingham	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	○	⊙	○+	○+
N/A	SBCT Training	Dillingham	⊙	⊙	○	⊗	⊙	⊙	⊙+	⊗	⊘	⊘	⊙	⊙	⊙
		KTA/KLOA													
57415	Tactical Vehicle Wash Facility	Kahuku	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙
57305	Combined Arms Collective Training Facility	Kahuku	⊗	⊙	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊙+	⊙+
N/A	Fixed Tactical Internet	KTA	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	○	⊙	○+	○+
N/A	SBCT Training	KTA/KLOA	⊙	⊙	○	⊗	⊙	⊙	⊘	⊗	⊘	⊘	⊘	⊙	⊙
		PTA													
57197	Battle Area Complex	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊙+	⊙+
57183	Antiarmor Live-fire and Tracking Range	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊙+	⊙+
58273	Construct Military Vehicle Trail, PTA-Kawaihae	Pōhakuloa	⊙	⊘	○	⊙	⊙	⊙+	⊙	⊘	⊘	⊘	⊘	⊙+	⊙
58273	Land Easement for Military Vehicle Trail, PTA-Kawaihae	Pōhakuloa	○	○	○	○	○	○	○	○	⊙	○	○	○	○
57417	Ammunition Storage	Pōhakuloa	⊙	⊙	○	⊙	⊙	○	○	○	⊙	⊘	⊙	⊙+	⊙+

Table ES-7
SBCT Project Impacts under RLA Alternative

1391 Project #	SBCT Project Title	Location	Land Use	Visual Resources	Airspace	Air Quality	Noise	Traffic	Water Resources	Geology and Soils	Biological Resources	Cultural Resources	Human Health & Safety Standards	Socioeconomics/EJ	Utilities
57414	Tactical Vehicle Wash Facility	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙+	⊙
57411	West PTA Maneuver Training Area Land Acquisition	Pōhakuloa	⊙+	⊘	○	○	○	○	⊙	⊙	⊙	⊘	○	○	○
56994	Range Maintenance Facility	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙+	⊙
57408	Runway Upgrade/Extension, Bradshaw AAF	Pōhakuloa	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊙	⊙+	⊙
N/A	Fixed Tactical Internet	Pōhakuloa	⊙	⊘	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊙	⊙+	○+
N/A	Installation Information Infrastructure Architecture	Pōhakuloa	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊙	⊙+	○+
N/A	SBCT Training	Pōhakuloa	⊙	⊙	○	⊗	⊘	○	⊘	⊗	⊘	⊘	⊘	⊙	⊙
57462	Qualification Training Range, QTR2	Pōhakuloa	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊙	⊙+

In cases when there would be both beneficial and adverse impacts, both are shown on this table. Mitigation measures would only apply to adverse impacts.

LEGEND:

PA = Proposed Action
RLA = Reduced Land Acquisition
NA = No Action
⊗ = Significant impact
⊘ = Significant but mitigable to less than significant impact
⊙ = Less than significant
○ = No impact
\+ = Beneficial impact
N/A = Not applicable

ES.8.3 Summary of Impacts

Land Use

Table ES-8 provides an overview of Land Use impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. Significant impacts on land use would result from (1) the construction of QTR2 at the SRAA (Section 5.2), which would result in a surface danger zone overlapping a portion of the forest reserve area of the SRAA, and (2) operation of the CACTF at KTA (Section 7.2), which would result in a surface danger zone preventing unauthorized access within KTA. Beneficial impacts would be realized at the WPAA from the expansion of public access for hunting during periods when no military training is taking place (Section 8.2).

Reduced Land Acquisition. Project impacts would be the same, except there would be no impact on recreational uses on lands within SRAA, as the QTR2 would not be built at SRAA (Section 5.2).

No Action. Under No Action, transformation would not occur, so no major changes to training areas would take place in Hawai'i. The Army would continue to operate and maintain its range, training areas, and support facilities in order to meet its Legacy Force training mission requirement. However, the level of training would change occasionally in response to this requirement and, as a result, the land uses of these areas may change. If future changes could affect the environment, NEPA documentation would be prepared.

Visual Resources

Table ES-9 provides an overview of Visual Resources impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. Significant but mitigable impacts would occur at SBMR (Section 5.3) from impairment of views during project construction activities and from alteration of landscape character because of facility construction, and at SBMR, DMR, and PTA (Sections 5.3, 6.3, and 8.3) from modification of existing views relating to road construction. Project-wide significant but mitigable impacts would occur relating to impairment of views, modification of existing views, and alteration of landscape character (Section 4.3).

Reduced Land Acquisition. The impacts to visual resources at SRAA would be reduced somewhat but would still be impacted by construction (Section 5.3). Overall the project impacts would be the same as the Proposed Action.

Table ES-8
Land Use Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Land Use															
Conversion of agricultural land to training land	⊙	⊙	○	⊙	⊙	○	N/A	N/A	N/A	⊙	⊙	○	⊗	⊗	○
Impacts on natural resources management and recreational land use	⊗	○	○	○	○	○	⊗	⊗	○	○+	○+	○	⊗+	○+	○
Construction of FTI in a Conservation District	⊙	⊙	○	⊙	⊙	○	N/A	N/A	N/A	⊙	⊙	○	⊙	⊙	○
Impacts on land use during construction activities	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Changes to training on lands now used for Legacy Force training	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○

In cases when there would be both beneficial and adverse impacts, both are shown on this table. Mitigation measures apply only to adverse impacts."

LEGEND:

⊗ = Significant
⊘ = Significant but mitigable to less than significant
⊙ = Less than significant
○ = No impact
\+ = Beneficial impact

N/A = Not applicable
PA = Proposed Action
RLA = Reduced Land Acquisition
NA = No Action

No Action. The baseline of current conditions and training exercises at all of the facilities would continue under No Action. The Army would continue to operate and maintain its range and training area facilities in order to meet its training mission requirement. Invariably, the level of training would change occasionally in response to this requirement, and, consequently, the visual impact as a result of these changes might be altered as well. The level of use of the installation's training assets is not anticipated to alter the physical character of the landscape itself, and no impacts are expected to the four visual resources impact issues.

Table ES-9
Visual Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Visual															
Impairment of view during the construction phase	⊘	⊘	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊘	⊘	○
Modification of existing view	⊘	⊘	○	⊘	⊘	○	⊙	⊙	○	⊘	⊘	○	⊘	⊘	⊙
Alteration of the landscape character	⊘	⊘	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Consistency with visual resource policies	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○

Legend is provided above under Table ES-8.

Airspace

Table ES-10 provides an overview of Airspace impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. There would be no significant or significant but mitigable impacts on airspace as a result of the Proposed Action.

Reduced Land Acquisition. Project impacts would be the same as the Proposed Action.

No Action. The current baseline of existing conditions would continue under No Action. There would be no direct impacts on airspace at any of the locations because none of the factors considered in determining impacts apply.

Table ES-10
Airspace Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Airspace															
Reduction in navigable airspace	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
New or modified special use airspace	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Change to a military training route	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Change in en route airways or IFR procedure	○	○	○	○	○	○	○	○	○	⊙	⊙	○	⊙	⊙	○
Restrict access to airport/airfield	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Obstruct air navigation	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Aviation Safety	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Legend is provided above under Table ES-8.

Air Quality

Table ES-11 provides an overview of Air Quality impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. Although PM_{10} emissions from construction equipment would increase substantially for two years at SBMR and for two years at PTA, annual emissions would create too small a net increased in ozone precursor emissions to have a measurable effect on ozone levels and would not affect the attainment status of the area. Therefore the impact would be less than significant and would not change the attainment status of the area. Fugitive dust PM_{10} emissions associated with off-road military vehicle use may create significant air quality impacts at SBMR, DMR, KTA, and PTA (Sections 5.5, 6.5, 7.5, and 8.5). Annual fugitive dust PM_{10} emissions from off road military vehicle use would show a net increase of 780 tons per year at SBMR, 211 tons per year at DMR, 315 tons per year at KTA, and 429 tons per year at PTA. Wind erosion may create significant air quality impacts

from wind blown dust on vehicle maneuver areas at KTA and PTA (Sections 5.5 and 8.5). The net increase in annual wind erosion from off-road vehicle maneuver areas would be about 164 tons per year at KTA and 1,602 tons per year at PTA. The substantial increase in fugitive dust PM_{10} emissions from military vehicle use at SBMR, DMR, KTA, and PTA, the substantial increase in fugitive dust PM_{10} emissions from windblown dust at KTA and PTA, the likelihood of exceeding the federal 24-hour standard, and the potential impacts to quality of life to surrounding communities and recreation users combined may result in a significant air quality impact at at these locations under the Proposed Action

Reduced Land Acquisition. Project impacts would be nearly the same as under the Proposed Action. Fugitive dust emissions at SBMR would be slightly higher than under the Proposed Action, but would be the same as for the Proposed Action at other installations.

No Action. Projected impacts to air quality are expected to be less than significant from emissions from ordnance use, emissions from engines from military vehicle use, fugitive dust, wind erosion, or other emissions from personnel increases.

Table ES-11
Air Quality Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Air Quality															
Emissions from construction activities	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Emissions from ordnance use	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Engine emissions from military vehicle use	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Fugitive dust from military vehicle use	⊗	⊗	⊙	⊗	⊗	⊙	⊗	⊗	⊙	⊗	⊗	⊙	⊗	⊗	⊙
Wind erosion from areas disturbed by military vehicle use	⊙	⊙	⊙	⊙	⊙	⊙	⊗	⊗	⊙	⊗	⊗	⊙	⊗	⊗	⊙
Emissions from increased aircraft operations	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Emissions from wildfires	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Other emissions from personnel increases	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	⊙	⊙	⊙

Legend is provided above under Table ES-8.

Noise

Table ES-12 provides an overview of Noise impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. There would be significant noise impacts from ordnance use at SBMR (Sections 5.6). At SBMR, increased training and munitions use under the Proposed Action would result in expansion of Zone II and Zone III noise contours. The Zone III noise contour would not change much from existing conditions, but would expand eastward by about 450 feet (137 meters) in the southwestern portion of the cantonment area. The Zone II noise contour would expand eastward by about 975 feet (297 meters). Some additional on-post housing would be encompassed by the expanded Zone III and Zone II noise contours. Two on-post schools (Solomon Elementary School and Hale Kula Elementary School) would remain exposed to Zone II noise conditions. There would be a significant but mitigable noise impact at PTA (Section 8.6). The use of blanks and other training munitions on the WPAA would produce unweighted peak dB levels in the Zone II range at the Waikiʻi Ranch and Kilohana Girl Scout Camp near the installation boundary. Ordnance firing and detonations at PTA might also lead to Zone II noise conditions at the Mauna Kea State Park rental cabins. Project-wide impacts from ordnance firing would be significant.

Reduced Land Acquisition. Although there would be a slight decrease in noise at the SRAA (See Section 5.6) there would be no appreciable change to project impacts over those described for the Proposed Action.

No Action. There would be a significant but unavoidable impact as a result of continued exposure to noise from ordnance use at SBMR (See Section 5.6), and less than significant impacts as a result from military vehicle use and aircraft operations, and no impact as a result of construction equipment and added personal vehicle traffic under No Action. Project-wide impacts under No Action would be significant.

Table ES-12
Noise Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Noise															
Noise from construction activities	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Noise from ordnance use	⊗*	⊗*	⊗	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊙	⊗	⊗	⊗
Noise from military vehicle use	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Noise from aircraft operations	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Noise from added personal vehicle traffic	⊙	⊙	○	○	○	○	○	○	○	○	○	○	⊙	⊙	○

Legend is provided above under Table ES-8.

* The PA and RLA for SBMR would have a minor increase in noise impacts over the NA. The determination of significance is based on existing NA levels.

Traffic

Table ES-13 provides an overview of Traffic impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. There would be no significant adverse impacts on traffic from the Proposed Action.

Table ES-13
Traffic Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Traffic															
Intersection operations	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙+	⊙+	○	⊙+	⊙+	○
Roadway segment operations	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙+	⊙+	○	⊙+	⊙+	⊙
Construction traffic	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Parking	⊙	⊙	○	○	○	○	○	⊙	○	○	○	○	⊙	⊙	○

Legend is provided above under Table ES-8.

Reduced Land Acquisition. Project impacts would be the same as the Proposed Action.

No Action. There would be less than significant impacts on traffic as a result of continued operations under No Action.

Water Resources

Table ES-14 provides an overview of Water Resources impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. There would be significant but mitigable short term impacts on surface water quality from facility construction at SBMR and KTA (See Sections 5.8 and 7.8). There would be significant but mitigable long term impacts on surface water quality from suspended sediment resulting from training activities at SBMR and KTA, from the potential for chemical residues or spills at SBMR, and from sediment loading following wildfires at SBMR, KTA, and PTA (See Sections 5.8, 7.8, and 8.8). Project-wide significant but mitigable long-term impacts would occur relating to surface water quality (See Section 4.8).

Reduced Land Acquisition. Project impacts would be the same as the Proposed Action.

No Action. There would be a significant but mitigable impact to water resources as a result of potential soil erosion at KTA. Under the No Action Alternative, the current less than significant impact levels for all of the identified water quality issues are expected to continue at the same level. Based on available data, the degradation of stream water quality by contaminant residues on training ranges at SBMR is not expected to be a significant impact. Although only the eastern portion of DMR is included in the FEMA flood zone study map

for the area, and the flood zone in the rest of DMR has not been determined, it appears likely, based on the portion that was studied, that flooding could occur on the remaining portion of DMR but would not be significant.

Table ES-14
Water Resources Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Water Resources															
Impacts on surface water quality	⊘	⊘	⊙	⊙+	⊙+	○	⊘	⊘	⊘	⊙	⊙	⊙	⊘+	⊘+	⊘
Impacts on groundwater quality	⊙	⊙	⊙	○	○	○	⊙	⊙	⊙	○	○	○	⊙	⊙	⊙
Increased flood potential	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	⊙	⊙	⊙
Groundwater supply	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	⊙	⊙	⊙

Legend is provided above under Table ES-8.

Geology, Soils, and Seismicity

Table ES-15 provides an overview of Geological impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. Significant impacts would occur at SBMR, KTA, DMR, and PTA (See Section 5.9, 6.9, 7.9, and 8.9) relating to soil loss from training activities. Significant but mitigable impacts would occur at SBMR, DMR, KTA, and PTA (See Section 5.9, 6.9, 7.9, and 8.9) relating to soil erosion and loss from wildland fires. Significant but mitigable impacts would occur at SBMR, DMR, and PTA (See Sections 5.9 and 8.9) from soil compaction, and slope failure. Project-wide impacts would be significant from soil loss, and significant but mitigable from wildland fire-related soil loss, soil compaction, soil contamination, and slope failure (See Section 4.9). Less than significant impacts from exposure to soil contaminants are expected at SBMR and PTA. Less than significant impacts are expected at PTA as a result of increased personnel that could be exposed to volcanic eruptions, lava flows, occasional explosive eruptions, volcanic gas venting, and seismic activity (See Section 8.9).

Reduced Land Acquisition. The geologic impacts under Reduced Land Acquisition would be nearly the same as those described for the Proposed Action, except that impacts would be substantially reduced in the SRAA. This would result in reduced impacts related to soil erosion and soil compaction in this area but would result in increased impacts in areas where training would be concentrated. There would be a less than significant impact on soil compaction at SBMR as a result of this change, because no maneuver training would take place at the SRAA, but all other impacts would remain the same. Mitigation would be the same as that under the Proposed Action, except that it is likely to be less successful because, with reduced land available for training, the impacts of training would be concentrated on a smaller amount of land. One of the available mitigation measures is to take damaged land

out of service until it recovers; but this measure would be less feasible if training were concentrated in a smaller land area.

Table ES-15
Geological Resources Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Geological Resources															
Soil Loss	⊗	⊗	⊘	⊗	⊗	○	⊗	⊗	⊘	⊗	⊗	○	⊗	⊗	⊘
Soil erosion and loss from wildland fires	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
Soil compaction	⊘	⊙	⊙	○	○	○	⊙	⊙	○	⊘	⊘	⊙	⊘	⊘	⊙
Exposure to soil contaminants	⊙	⊙	⊙	○	○	○	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙
Slope failure	⊘	⊘	○	⊘	⊘	○	⊙	⊙	○	⊙	⊙	⊙	⊘	⊘	⊙
Volcanic and seismic hazards	○	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

Legend is provided above under Table ES-8.

No Action. There would be no significant impact under No Action with the exception of soil compaction. Soils in training areas would be subject to existing levels of compaction. Most of these effects have already occurred, although continued maneuver training would reduce the ability of soils to recover from these effects. Mitigation would be the same as that described under the Proposed Action.

Biological Resources

Table ES-16 provides an overview of Biological Resources impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. Project-wide impacts from impacts from fire on sensitive species and habitat, and federally listed species and designated or proposed critical habitat would result in overall significant impacts not mitigable to the less than significant level. However, both impacts are significant and mitigable to the less than significant level at each of the individual installations (See Sections 5.10, 6.10, 7.10, and 8.10). Impacts on sensitive species from the spread of nonnative species, and impacts from loss and degradation of sensitive species and habitat would be significant and mitigable to the less than significant level on both the installation specific and project-wide level.

Reduced Land Acquisition. Impacts from the Reduced Land Acquisition would be the same as the Proposed Action. Project-wide significant impacts, not mitigable to the less than significant level, would occur from fire on sensitive species and habitat, and federally listed species and designated or proposed critical habitat, Significant impacts mitigable to the less than significant level would occur at all installations (See Sections 5.10, 6.10, 7.10, and 8.10), regarding impacts on sensitive species from the spread of nonnative species, and impacts from loss and degradation of sensitive species and habitat.

Table ES-16
Biological Resources Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Biological Resources															
Impacts from fire on sensitive species and sensitive habitat.	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊗	⊗	⊘
Impacts on federally listed species and their federally designated or proposed critical habitat.	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊗	⊗	⊘
Impact on sensitive species resulting from the spread of nonnative species.	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
Loss and degradation of sensitive species and habitat.	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
Threat to migratory birds.	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Noise and visual impacts.	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Impacts on general vegetation and wildlife.	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Runoff impacts on marine wildlife and coral ecosystems.	N/A	N/A	N/A	○	○	○	○	○	N/A	⊘	⊘	N/A	⊘	⊘	○

Legend is provided above under Table ES-8.

No Action. There would be a continuation of existing significant and mitigable to less than significant impacts under no action. This includes fire impacts on sensitive species and habitat, impacts on federally listed species and their federally designated and proposed critical habitat, impacts on sensitive species resulting from the spread of nonnative species, and loss and degradation of sensitive species and habitat at each training area. The combined impact of these Legacy Force locations would continue to be significant and mitigable to the less than significant level with the application of the extensive fire management plans. The Army has identified impacts to federally listed species and critical habitat and is undergoing consultation with USFWS. Consultation on proposed plant habitat within the ROI would occur on the federal designation of the habitat.

Ongoing USARHAW Environmental management and stewardship activities, described in Chapter 2, would continue to decrease impact intensity and to protect sensitive plants and habitats within the ROI.

The following less than significant impacts on biological resources would occur as a result of SBCT actions within each of the SBCT training area ROIs: threats to migratory birds, noise and visual impacts, and impacts on general vegetation and wildlife. These impacts would be limited and would be addressed by ongoing USARHAW environmental management and stewardship activities.

Cultural Resources

Table ES-17 provides an overview of Cultural Resources impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Table ES-17
Cultural Resources Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Cultural Resources															
Impacts on historic buildings	⊙	⊙	○	○	○	○	⊘	⊘	○	⊘	⊘	○	⊘	⊘	○
Impacts on archaeological resources from range and facility construction	⊘	⊘	○	○	○	○	⊘	⊘	○	⊘	⊘	○	⊘	⊘	○
Impacts on archaeological resources from training activities	⊘	⊘	⊙	⊘	⊘	⊙	⊙	⊙	⊙	⊘	⊘	○	⊘	⊘	⊙
Impacts on archaeological sites from construction of FTI	⊙	⊙	○	⊙	⊙	○	○	○	○	⊙	⊙	○	⊙	⊙	○
Impacts on ATIs	⊘*	⊘*	○	⊘*	⊘*	○	⊙	⊙	○	⊘*	⊘*	○	⊘	⊘	○
Impacts on undiscovered archaeological sites in areas of low potential	⊙	⊙	○	○	○	○	N/A	N/A	N/A	⊙	⊙	○	⊙	⊙	○
Impacts from installation information infrastructure architecture construction	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	⊙	⊙	○	⊙	⊙	○
Impacts on archaeological sites from road or trail construction	⊙	⊙	○	⊘	⊘	○	N/A	N/A	N/A	⊘	⊘	○	⊘	⊘	○
Impacts on archaeological sites from road use	○	○	N/A	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	○

Legend is provided above under Table ES-8.
* Impacts may be mitigable to less than significant.

Proposed Action. Significant but mitigable impacts would occur at SBMR, KTA, and PTA (See Sections 5.11, 7.11, and 8.11) on archaeological resources disturbed or destroyed by range and facility construction, at KTA and PTA on historic buildings, at SBMR, DMR, and PTA on archaeological resources affected by training activities (Sections 5.11, 6.11, and 8.11), and areas of traditional (ATI) importance to Native Hawaiians, and at DMR and PTA on archaeological sites affected by road construction (Sections 6.11 and 8.11). Project-wide significant but mitigable impacts would occur on historic buildings, ATIs, and archaeological sites affected by range and facility construction, road construction, and training activities (See Section 4.11).

Reduced Land Acquisition. Project impacts would be the same as the Proposed Action.

No Action. Existing conditions would continue under No Action. Less than significant impacts under No Action generally result from ongoing training activities or infrastructure projects. Ongoing training activities include continued off-road vehicle use. This would result in ongoing impacts on cultural resources in the training areas caused by ground troop activities, off-road vehicle movement, and subsurface excavations. Archaeological resources

on the training areas are monitored following exercises to document adverse effects on the sites. Under No Action, Legacy Force training would continue, and there would be no additional impacts on cultural resources. USARHAW would continue efforts to inventory eligible historic properties in compliance with Section 110 of the NHPA, and Legacy Force-related project planning would comply with Section 106 and its implementing regulations. Impacts on cultural resources would be mitigated in compliance with these regulatory requirements.

Human Health & Safety Hazards

Table ES-18 provides an overview of impacts on Human Health and Safety at each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. A significant but mitigable impact relating to Installation Restoration Program (IRP) site management would occur at SBMR (Section 5.12). A significant but mitigable impact to range contaminant levels due to an increase in ammunition use by 25% would occur at SBMR and PTA (Sections 5.12 and 8.12). Significant but mitigable impacts would occur at KTA (Section 7.12) relating to PCBs and ammunition, at SBMR and PTA (Sections 5.12 and 8.12) relating to UXO and ammunition, at SBMR, KTA, and PTA (Sections 5.12, 7.12, and 8.12) relating to lead and asbestos, and at every installation relating to wildfire hazards. A project-wide significant but mitigable impact would relate to IRP and ammunition issues. Project-wide significant but mitigable impacts would relate to UXO, lead, asbestos, PCBs, and wildfires (Section 4.12).

Reduced Land Acquisition. A significant but mitigable impact relating to Installation Restoration Program site management would occur at SBMR (Section 5.12). A significant but mitigable impact relating to ammunition would occur at SBMR and PTA (Sections 5.12 and 8.12). Significant but mitigable impacts would occur at KTA (Section 7.12) relating to PCBs and ammunition, at SBMR and PTA (Sections 5.12 and 8.12) relating to UXO, at SBMR, KTA, and PTA (Sections 5.12, 7.12, and 8.12) relating to lead and asbestos, and at every installation relating to wildfire hazards. A project-wide significant but mitigable impact would relate to IRP and ammunition issues. Project-wide significant but mitigable impacts would relate to UXO, lead, asbestos, PCBs, and wildfires (Section 4.12).

No Action. There would be no significant impacts as a result of No Action.

Socioeconomics and Environmental Justice

Table ES-19 provides an overview of Socioeconomic impacts on each installation from the Proposed Action, RLA Alternative, and No Action.

Proposed Action. Significant but mitigable impacts would occur at SBMR (See Section 5.13) relating to the increase in demand for school capacity and teachers. Significant but mitigable economic impacts to Hawai'i County would occur because of construction activities at PTA (See Section 8.13).

Table ES-18
Human Health and Safety Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Human Health and Safety															
Hazardous materials management	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Hazardous waste management	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Ammunition	⊘	⊘	⊙	○	○	○	⊘	⊘	○	⊘	⊘	⊙	⊘	⊘	⊙
Unexploded ordnance	⊘	⊘	⊙	○	○	○	○	○	○	⊘	⊘	⊙	⊘	⊘	⊙
General training	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙
Installation restoration program sites	⊘	⊘	○	○	○	○	○	○	○	○	○	○	⊘	⊘	⊙
Lead	⊘	⊘	⊙	○	○	○	⊘	⊘	○	⊘	⊘	⊙	⊘	⊘	⊙
Asbestos	⊘	⊘	○	○	○	○	⊘	⊘	○	⊘	⊘	○	⊘	⊘	○
Polychlorinated biphenyls	○	○	○	○	○	○	⊘	⊘	○	○	○	○	⊘	⊘	○
Electromagnetic fields	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Petroleum, oils and lubricants	⊙	⊙	○	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Pesticides/herbicides	⊙	⊙	○	○	○	○	○	○	○	⊙	⊙	○	⊙	⊙	○
Biomedical waste	⊙	⊙	○	○	○	○	○	○	○	⊙	⊙	○	⊙	⊙	○
Radon	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Wildfires	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	⊙	⊘	⊘	⊙

Legend is provided above under Table ES-8.

Reduced Land Acquisition. Project impacts would be the same as the Proposed Action.

No Action. Implementing No Action would not result in a change in the local economy or population, and no impacts on population, employment, income or the economy are anticipated. No effects on housing are expected because the number of people requiring housing on- or off-post would not change as a result of No Action. No effects on environmental justice are expected. No Action would not alter the existing health and safety, housing, or economic conditions of minority or low-income populations in Hawai'i or Honolulu Counties. No disproportionate effects on children are expected because No Action would not present any change in the public health or safety risk that could affect children. The Army would continue to provide measures to protect the safety of children, including the use of fencing, limitations on access to certain areas, and provision of adult supervision.

Public Services and Utilities

Table ES-20 provides an overview of impacts on Public Services and Utilities at each installation from the Proposed Action, RLA Alternative, and No Action.

Table ES-19
Socioeconomics Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Socioeconomics															
Population	⊙+	⊙+	○	○	○	○	○	○	○	○	○	○	⊙+	⊙+	○
Employment	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○
Income	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○
Economy (business volume)	⊙+	⊙+	○	⊙+	⊙+	○	⊙+	⊙+	○	⊘+	⊘+	○	⊘+	⊘+	○
Housing	⊙	⊙	○	○	○	○	○	○	○	○	○	○	⊙	⊙	○
Schools	⊘	⊘	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	⊘	⊘	○
Environmental justice	○	○	○	⊙	⊙	○	⊙	⊙	○	○	○	○	⊙	⊙	○
Protection of children	⊘	⊘	○	⊙	⊙	○	⊙	⊙	○	○	○	○	⊘	⊘	○

Legend is provided above under Table ES-8.

Proposed Action. There would be no significant impacts on public services or utilities from the Proposed Action. The Proposed Action could have beneficial effects on the telephone system at DMR and PTA (Sections 6.14 and 8.14). The Proposed Action would have beneficial effects on the electrical system at KTA (Section 7.14).

Reduced Land Acquisition. Project impacts would be the same as the Proposed Action.

No Action. No Action is expected to have no long-term adverse impacts on public utilities because no new facilities would be constructed to add demands to utilities infrastructure. No changes to the provision of police, fire, and emergency services would occur.

Table ES-20
Public Services and Utilities Impacts by Installation and Impact Category

Impact Issues	SBMR			DMR			KTA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Public Services and Utilities															
Impacts to police, fire, and emergency medical services	⊙	⊙	○	⊙+	⊙+	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Impacts to water distribution	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Wastewater and stormwater impacts	⊙	⊙	○	○	○	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Solid waste management	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○	⊙	⊙	○
Impacts to telephone service	⊙	⊙	○	○+	○+	○	○	○	○	⊙+	⊙+	○	⊙	⊙	○
Impacts to electricity and natural gas	⊙	⊙	○	⊙	⊙	○	⊙+	⊙+	○	⊙	⊙	○	⊙+	⊙+	○

Legend is provided above under Table ES-8.

ES.8.4 Cumulative Impacts

CEQ regulations implementing NEPA require that the cumulative impacts of a proposed action be assessed (40 CFR Parts 1500-1508). Army regulations 200-2 (32 CFR 651.39(a)(2)(ii)) also require that cumulative actions, when viewed with other proposed actions that have cumulatively significant impacts, be discussed in the same impact statement. Direct and cumulative impacts should be viewed together to determine the full impacts from each alternative identified in this EIS. However, cumulative impacts are identified in a separate section of this EIS, due to different analytical methods for determining significance and because the ROI is often larger than that of direct and indirect impacts. (CEQ 1997). Also, this EIS may identify significant direct impacts for certain resources while finding that there are no significant cumulative impacts for the same resource. This difference is normally due to the different geographical context needed for measuring direct and cumulative impacts.

This EIS uses a variety of methods, depending on the resource area, to determine cumulative socioeconomic and environmental effects. Methods for gathering and assessing data regarding cumulative impacts include: interviews, use of checklists, trends analysis, and forecasting. In general, past, present, and future foreseeable projects are assessed by resource area. These projects, which are listed in Tables 9-1 and 9-2, are sponsored by the U.S. Army, other federal and state agencies and private entities and include 34 projects on Oʻahu and 9 projects on Hawaiʻi.

Cumulative impacts from the proposed action and the reduced land acquisition alternative, and the no action alternative would occur in all resource areas as described in Chapter 9 of this EIS. Significant cumulative impacts would occur in the following resource areas: land use, and water, biological, cultural and socioeconomic resources. There would be significant and non-mitigable impacts from the Proposed Action and the Reduced Land Acquisition Alternative to land use due to the acquisition and conversion of agricultural land for Army use as training areas. There would be no significant cumulative impacts to land use from the No Action Alternative.

There would be significant but mitigable long term cumulative impacts on surface water quality from suspended sediment resulting from training activities at SBMR and KTA, from the potential for chemical residues or spills at SBMR, and from sediment loading following wildfires at SBMR, KTA, and PTA. These water quality impacts are to streams that have been identified by the State of Hawai`i as "impaired water bodies," a status which is established by measuring various sources of contamination. Therefore, because state agencies determine this "impaired" status by taking into account other past, present and foreseeable source of contamination, cumulative impacts are similar to those direct surface water impacts described in sections 5.8, 7.8 and 8.8. There would significant but mitigable impacts to biological resources due to: a cumulative increase in the potential for fire to occur on Oʻahu and the island of Hawaiʻi as a result of SBCT and the projects listed in Tables 9-1 and 9-2; the construction, demolition, and associated increased use of roads and areas around where listed plant species grow or where listed wildlife nest or forage; the increase in training, especially live-fire training at SBMR and PTA which could threaten designated and proposed critical habitat and result in the direct loss or "take" of species through fire; the

construction of large towers in important breeding or flying corridors that would obstruct the flying patterns of migratory birds; potential cumulative loss of suitable habitat; the production of fugitive dust or other such habitat degradation; and the introduction and spread of nonnative species.

Construction projects on the islands of O'ahu and Hawai'i could result in significant cumulative impacts on cultural resources. Scoping comments indicate that there are significant native Hawaiian resources in the area in and around MMR and some historical buildings that would be altered by the Residential Communities Initiative that could combine with the project measures on O'ahu to cause significant but mitigable cumulative impacts. On Hawai'i, there are cultural and archeological resources at Kawaihae Harbor, including an underwater heiau; the harbor deepening and the new highway from Waimea to Kawaihae Harbor could significantly affect these resources. Construction of the new range control building at PTA could have significant impacts on cultural resources, depending on its location. Impacts from the Reduced Land Acquisition Alternative would be similar to the Proposed Action. There would be no significant cumulative cultural impacts from the No Action Alternative.

The possible increase of 760 students to the schools serving SBMR would result in significant long-term adverse cumulative socioeconomic effects on schools. The SBCT Proposed Action would increase the population of primary and secondary schools serving SBMR by 19.5 percent. No adverse cumulative effects on environmental justice populations and on the protection of children would be expected. Noise sources or increased traffic associated with the proposed action military training maneuvers, proposed action construction projects, or construction projects from other actions occurring in the ROI, could result in less than significant adverse impacts on nearby schools or residences. Increases in traffic and noise would increase the risk of adverse health affects on children. To minimize effects, strict adherence to applicable safety regulations and procedures would continue. There would be no significant cumulative effects from the No Action Alternative.

ES.9 OTHER CONSIDERATIONS

ES.9.1 Significant Unavoidable Adverse Impacts

An EIS must describe any significant unavoidable impacts for which either no mitigation or only partial mitigation is feasible. Significant and unavoidable impacts from the Proposed Action are limited to the following:

- Unauthorized recreational access at KTA may be adversely affected by additional fencing and signs restricting access, which is necessary due to the proposed live-fire use of the area (Section 7.2, Land Use/Recreation);
- Impacts on recreation and natural resources management of a forest reserve within the project surface danger zone at QTR2 at the SRAA limiting access to trails and reserve areas. (Section 5.2, Land Use/Recreation);

- Air quality impacts from wind erosion of areas previously disturbed by off-road vehicle maneuver activity (where vegetation has been decreased resulting in increased wind erosion) at KTA and PTA (Section 7.5, and Section 8.5, Air Quality);
- Air quality impacts from fugitive dust from increased military vehicle driving on unpaved surfaces at SBMR, KTA, and PTA (Section 5.5, Section 7.5 and Section 8.5, Air Quality);
- Noise impacts from ordnance use at SBMR (Section 5.6, Noise);
- Soil loss from Stryker training at SBMR, DMR, KTA, and PTA due to wind and water erosion (Section 5.9, Section 7.9, and Section 8.9, Geology, Soils, and Seismicity); and
- Project-wide biological resources impacts from fire on sensitive species and habitat and on federally listed species and designated or proposed critical habitat (Section 4.10).

ES.9.2 Relationship Between Local Short-Term Uses of the Environment and Long-Term Productivity

NEPA requires that an EIS include a consideration of the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.

Construction activities associated with the proposed projects are short-term and temporary. All significant construction impacts would be mitigated where practicable under the constraints of public safety and the military mission. Short-term damage to the environment relating to construction includes direct and indirect loss of habitat and damage to sensitive species, loss of nonrenewable cultural resources, emissions impacts on air quality, and surface water quality impacts. Long-term environmental damage includes loss of important farmland, impacts on soil and water quality, impacts on habitat and wildlife from training activities, erosion, and wildfires, air quality impacts from wind erosion due to training activities, and potential damage to cultural resources in the future.

The conversion of important farmland to military use at PTA and SBMR could affect long-term agricultural productivity in Hawai'i. Therefore, there would be some adverse impacts on long-term productivity as a result of the Proposed Action, but regional socioeconomic impacts are not expected to be significant.

Long-term productivity would be served by replacing inadequate and inefficient facilities at SBMR and KTA with modern fuel-efficient buildings designed to reduce long-term reliance on nonrenewable fuel sources. Such replacement would also remove workplace hazards to Army staff, such as lead-based paint (LBP) and asbestos-containing material (ACM). Infrastructure upgrades (such as communications and power systems) associated with the Proposed Action would result in longer life of these facilities and fewer expenses in maintaining and repairing such facilities. New facilities, such as the vehicle washes, would be designed to reduce the spread of invasive species and would use recycled water, and other facilities, such as select FTI sites, may be designed to use solar power, thus minimizing the project's long-term energy requirements.

The long-term productivity of the Proposed Action is based on the Army's mission, specifically its duty under transformation. Any measurement of long-term productivity in this context must recognize the overriding importance of national defense and the Army's obligation to adapt to changing national security needs. While the Army will take whatever actions are reasonable and practicable to preserve and protect the natural environment under its stewardship, the necessity of national defense requires the Army to provide the nation with capabilities that meet current and evolving national defense requirements. The Proposed Action is designed to meet these goals and further the security and welfare of the US, its residents, and its natural environment.

ES.9.3 Irreversible and Irretrievable Commitments of Resources

NEPA requires that an EIS analyze the extent to which the proposed action's primary and secondary effects would commit nonrenewable resources to uses that future generations would be unable to reverse.

Implementing the Proposed Action or Reduced Land Acquisition would require commitments of both renewable and nonrenewable energy and material resources for demolishing inadequate facilities at SBMR and PTA; for constructing FTI towers, proposed ranges, and support facilities at SBMR, DMR, KTA, WAAF, and PTA; and for constructing Dillingham Road and Helemanō and PTA Trails. Material resources that would be used include wood, concrete, metals, asphalt and other petroleum products, and nonrenewable energy would be used for the construction activities. This temporary energy expenditure would occur over the short term and would be irreversible once construction is completed.

ES.10 MITIGATION MEASURES

Mitigation actions would be expected to reduce, avoid, or compensate for most adverse effects. Table ES-8 summarizes the potential mitigation measures that could be implemented to minimize effects on affected resources. The table does not include those measures that are considered SOPs and best management practices (BMPs) and are assumed to be implemented as part of the proposed project; these additional protection measures are outlined in the various resource sections. The Table also describes the benefits of a given mitigation measure.. The final determination on whether any given mitigation would be implemented will be determined during the preparation of the FEIS. Section ES 9.1 describes those impacts that are significant and unavoidable and cannot be mitigated to less than significant.

Table ES-21
SBCT EIS Mitigation Matrix

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
General							
1	PTA	Impacts on cultural and natural resources, all SBCT construction and training activities.	Mitigation measures considered constructing a natural and cultural resources visitor center at PTA, adjacent to the new Saddle Road alignment. The visitor center would provide interpretive displays of the biological and cultural resources of not only PTA but also the region between Mauna Loa and Mauna Kea and would include a small theater for interpretive video or live presentations. The center also would house the PTA resource managers and lab facilities.			Would partially mitigate public's concern for loss of access to natural and cultural resources.	State or county
Land Use							
2	SBMR	Impacts on land use as a result of training.		USARHAW would implement USARHAW range safety restrictions to foot and vehicular traffic within the QTR2 SDZ, up to and including closing these areas during QTR2 live-fire range operations. Although the land use would be restricted an estimated 180 to 242 days per year and 8 to 12 hours per day, USARHAW would not restrict The Nature Conservancy's access for monthly interpretive hikes or to manage the area when the range is not in use.		Would reduce impacts on land use changes to less than significant by protecting potential users from training activities.	USARHAW (Range Control)
3	SBMR, PTA	Impacts on agricultural land as a result of training activities.	Mitigation measures considered include establishing a cooperative relationship with the landowner and lessee to allow continued pineapple cultivation at SBMR and grazing at PTA in conjunction with training on the land.			Would minimize loss of valuable agricultural lands to less than significant.	USARHAW
4	KTA	Impacts on land use as a result of training activities.		When the CACTF is active, USARHAW is considering establishing all prudent measures, such as putting up signs and fencing, to prevent unauthorized access within the surface danger zones for SRTA, which are up to 2,300 feet (700 meters)..		Would help reduce impacts to public safety during training to less than significant.	USARHAW (Range Control)
5	All	Impacts of training activities on environment.	Mitigation measures considered include establishing a citizens advisory board for O'ahu and Hawai'i USARHAW training lands, made up of local volunteers to assist the USARHAW in identifying impacts and mitigations from USARHAW-determined projects and priorities.			Would partially mitigate public's concern for impacts on natural and cultural resources.	USARHAW (PAO/DPW)
Visual							
6	SBMR	Impaired view during the construction phase and altered landscape character.		The Army would enhance site conditions, where practicable, to help screen SBCT-related projects from the surrounding area. Mitigation measures would be designed to complement the view. Natural features would be conserved, where practicable. Screening would be constructed of materials that mimic the color and texture of the surrounding area. Where practicable, USARHAW would use tree and shrub plantings that complement natural and ornamental plantings, earthen berms that mimic the color and texture of the surrounding area, and fencing materials designed to fit in with the surrounding area, or some combination of these measures, in accordance with the Installation Exterior Architectural Plan.		Would reduce impacts on visual resources to less than significant due to project features by using materials that blend in with the natural features in construction and screenings.	USARHAW (DPW)
7	DMR, SBMR, PTA	Modification of the views.	Mitigation measures considered include constructing the proposed Dillingham Trail, PTA Trail, and Helemano Trail to conserve natural features, including terrain and vegetative cover, to the extent practicable. Use of roadbed materials that contrast sharply with			Would reduce impacts on visual resources to less than significant by using materials that blend in with the natural	USARHAW (Transformation)/POH

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
			conditions would be avoided to the extent practicable. To avoid creating a discordant linear feature, the road alignment would, where possible, follow the natural contours of the land. Cut slopes would be minimized or avoided, where practicable. Cut slopes would be blended into the landscape by rounding the edges of the slope and the roadbed alignments. Use of these techniques would vary based on the specific conditions, including depth of the cut, orientation of the slope, and type of material (e.g., dirt slope, rock slope).			features in construction and screenings.	
8	DMR, PTA	Modification of the views.		The Army is considering enhancing the site conditions, where practicable, to help screen the proposed towers and support sheds from the surrounding area. The tower site would be developed to conserve natural features, including terrain and vegetative cover, to the extent practicable. The equipment shed would be located to maximize use of natural screening. If necessary, additional screening would be installed by either planting vegetation or using materials that mimic the color and texture of the surrounding area. Materials used for construction of the tower and equipment shed would be nonreflective, weathered, or otherwise painted to blend with the natural surroundings, in accordance with the Installation Exterior Architecture Plan.		Would reduce impacts on visual resources to less than significant by using materials that blend in with the natural features in construction and screenings.	USARHAW (Transformation)/POH
Air Quality							
9	SBMR, KTA	Impacts on air quality as a result of training.	Mitigation measures considered include providing a gravel cover to dirt roads and other open dirt areas to reduce fugitive dust generation. USARHAW would also evaluate other potential measures not yet identified that may be incorporated to reduce fugitive dust generation. Gravel produced by crushing local lava-derived rocks would be thoroughly washed prior to placement.			Would help reduce impacts from fugitive dust.	USARHAW (Range Control)
10	SBMR, KTA	Impacts on air quality as a result of training.	Mitigation measures considered include conducting periodic application of synthetic dust control chemicals to control fugitive dust from unpaved roads and tank trails at other military installations.			Would help reduce impacts from fugitive dust.	USARHAW
11	KTA	Impacts on air quality as a result of training.	Mitigation measures considered include considering reseeding vegetation when practicable with rotating maneuver activities in available areas. The effectiveness of reseeding depends on having adequate periods for germination and vegetation establishment between repeated disturbances. This might not be possible for the limited off-road maneuver areas available at SBMR.			Would help reduce impacts from fugitive dust.	USARHAW
Noise							
12	SBMR, PTA	Noise impacts from ordnance use during training.	Mitigation measures considered include evaluating training techniques, scheduling and location to reduce overall noise impacts. At SBMR mitigation measures considered include providing noise insulation measures such as modifications to window materials and cooling systems *to* noise sensitive land uses that are or that may become exposed to Zone III and Zone II noise conditions, with a priority given to school and family housing areas affected by Zone III conditions. In this evaluation, the Army would consider, as feasible, the benefit of timing restrictions on training and moving	An evaluation of training techniques, scheduling and location to reduce overall noise impacts. In this evaluation, the Army would consider, as feasible, the benefit of timing restrictions on training and moving certain training activities to PTA. The noise contours will be further refined as training doctrine is finalized to distinguish the day and nighttime effects in an effort to define additional mitigation. Updated modeling results might result in minor changes		Would help reduce impacts from ordnance use.	USARHAW

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
			certain training activities to PTA	to the noise contours.			
Traffic							
13	All	Impacts of training activities on communities.	Mitigation measures considered include creating a public Web site that lists a schedule of upcoming USARHAW activities, including training and public involvement projects. Subject to force protection measures and other security measures, the site would contain USARHAW training and convoy schedules, community projects the USARHAW is involved in, any USARHAW activity or function that the public could attend, any general USARHAW news that might be of interest to the public, and USARHAW services available to the public.			Would mitigate public's concerns about traffic problems caused by training activities, lack of Army/public interaction, and public's perception that the Army is not part of community.	USARHAW (PAO)
Water Resources							
14	SBMR	Impacts on water resources due to soil erosion and sediment loading.	Mitigation measures considered include hardening the roads, raising the elevation of the roadway to improve drainage, installing drainage ditches adjacent to roads to control runon and runoff, planting grasses to slow overland flow, and intercepting runoff before it flows into Waikele Stream or tributaries, where practicable, in accordance with Army design standards.	Storm water regulations require preparation of storm water pollution prevention plans and implementation of best management practices to control runoff and prevent pollution of receiving waters. In addition, standard spill control procedures, contingency planning, and personnel training will further reduce the potential for spills and ensure that spills are promptly cleaned up if they occur.		Would reduce impacts on surface water resources from Helemanō Road construction to less than significant by controlling erosion and minimizing sediment loading to nearby Waikele Stream.	USARHAW (Transformation)/POH
15	SBMR	Impacts on water resources due to erosion of explosives residues.	Mitigation measures considered include hardening the roads, raising the elevation of the roadway to improve drainage, installing drainage ditches adjacent to roads to control runon and runoff, planting grasses to slow overland flow, and intercepting runoff before it flows into Waikele Stream or tributaries, where practicable, in accordance with Army design standards. The Army is considering voluntarily implementing a monitoring program, similar to what is typically required for stormwater pollution prevention programs at construction and industrial sites to determine the need for runoff controls and the effectiveness of the controls.			Would reduce impacts on surface water resources to less than significant by minimizing explosives byproducts from reaching streams.	USARHAW (Transformation)/POH
16	KTA	Impacts on water resources due to erosion.		USARHAW would continue to implement land restoration measures identified in the KMWP Management Plan and in the Integrated Natural Resources Management Plan (USARHAW and 25th ID[L] 2001a). Mitigation measures would include, but would not be limited to, implementing the ITAM program to identify and inventory land condition using a GIS database; coordinating between training planners and natural resource managers; implementing land rehabilitation measures identified in the Integrated Natural Resources Management Plan; monitoring the effectiveness of the land rehabilitation measures; evaluating erosion modeling data to identify areas in need of improved management; and implementing education and outreach programs to increase user awareness of the value of good land stewardship.		Would reduce impacts on surface water resources to less than significant by providing an ongoing program to monitor and protect ecosystems while maintaining training capabilities.	USARHAW (ITAM)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
Geology, Soils, and Seismicity							
17	SBMR, PTA	Impacts on geologic and water resources from range use.	Mitigation measures considered include monitoring surface water quality and soils as a means of measuring potential future impacts. If impacts on surface water or soils were identified through monitoring, further mitigation could include characterizing and remediating contaminant source areas.			Would monitor possible future impacts on geologic and water resources.	USARHAW (ITAM)
18	KTA	Impacts on erosion from training activities.		USARHAW would continue to implement land management practices and procedures described in the ITAM annual work plan to reduce erosion impacts (US Army Hawai'i 2001a). Currently these measures include implementing a training requirement integration program an ITAM program environmental awareness program, developing and enforcing range regulations, implementing an erosion and sediment control management plan, coordinating with other participants in the Ko'olau Mountains Watershed Partnership, and continuing to implement land rehabilitation projects, as needed, within the LRAM program. Examples of current Land Rehabilitation and Maintenance activities at KTA include revegetation projects involving site preparation, liming, fertilizing, seeding or hydroseeding, planting trees, irrigating, and mulching, a combat trail maintenance program, coordinating with the 65th and 84th Engineers on road maintenance projects, and developing mapping and GIS tools for identifying problems and tracking progress of mitigation measures. USARHAW would implement a soil erosion monitoring program.		Would reduce impacts on soils to less than significant by minimizing erosion and providing an ongoing program to monitor and protect ecosystems while maintaining training capabilities.	USARHAW (ITAM)
19	PTA	Impacts on erosion from training activities.	Mitigation measures considered include reducing wind erosion by watering roads or by creating wind barriers and by planting vegetation cover, when practicable.	USARHAW would continue to implement management practices identified in the INRMP for PTA (USARHAW and 25th ID[L] 2001b). In addition, soil erosion by water could be mitigated by reducing soil disturbance in sensitive areas, changing or moving the soil-disturbing activities, designing roads or tracks to reduce erosion and confining vehicles to those roads or tracks as much as possible, implementing runoff control measures, and planting or encouraging the growth of vegetation cover. This would be done at the conclusion of each training event on the WPAA.		Would reduce impacts on soils to less than significant by minimizing erosion and providing an ongoing program to monitor and protect ecosystems while maintaining training capabilities.	USARHAW (ITAM)
20	PTA	Impacts on soils from training activities.	Mitigation measures considered include restricting off-road maneuver training to identified areas and by operating vehicles on roads in other areas, per ITAM guidance, to reduce impacts due to soil compaction.			Would reduce impacts on soils to less than significant by minimizing erosion.	USARHAW (ITAM)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
Biological Resources							
21	All	Impacts on federally listed species and federally designated critical habitat.		The effects of SBCT actions on listed species in the ROIs are being evaluated as part of Section 7 Consultation with USFWS. The Army will implement all reasonable and prudent measures determined during this consultation, and these actions would be incorporated into the Proposed Action. These measures would help avoid effects and compensate for impacts on listed species that would result directly and indirectly from implementing the Proposed Action.		Measures identified during this process would minimize impacts on listed species to a less than significant and may be necessary to obtain a "no jeopardy" opinion.	USARHAW (DPW)
22	All	Impacts on federally listed species and federally designated critical habitat.		USARHAW will notify the USFWS if a fire were to escape the firebreak roads within the ROI and would consult with the USFWS, as necessary.		Important component in reducing impacts to less than significant on sensitive species (not including federally listed species) and habitats by reducing loss from fire.	USARHAW (DPW)
23	All	Impacts on sensitive species (excluding federally listed) and habitats from spread of alien species.	Mitigation measures considered include educating soldiers and other potential users of the facilities and roads in the importance of cleaning vehicles and field gear. Contractors and their employees would be educated about the need to wear clean clothes and to maintain clean vehicles when coming onto the construction site and would comply with measures to avoid introducing alien species to the project site.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by minimizing the introduction of alien species.	USARHAW (G3)
24	All	Impacts on sensitive species (excluding federally listed) and habitats from spread of alien species.	Mitigation measures considered include using native plants in any new landscaping or planting efforts, where practicable. When practicable, natural habitats would remain intact or adjacent areas would be restored as habitat.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by minimizing the introduction of alien species.	USARHAW
25	All	Impacts on sensitive species (excluding federally listed) and habitats.	Mitigation measures considered include fencing or flagging, where practicable, any sensitive plant communities from activities that may take place within the ROI.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by protecting them from direct damage by construction or training activities.	USARHAW
26	All	Impacts on sensitive species (excluding federally listed) and habitats from spread of alien species.		USARHAW is considering implementing an environmental management system to further improve the identification and reduction of environmental risks inherent in mission activities. This would include ecosystem level management for all rare species, pest management, land rehabilitation and maintenance, and fire prevention and suppression.		This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by providing an ongoing program to monitor and protect ecosystems while maintaining training capabilities.	USARHAW (DPW)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
27	All	Impacts on sensitive species (excluding federally listed) and habitats from spread of alien species.		USARHAW will follow HQDA guidance developed in consultation with the Invasive Species Council and compliance with Executive Order 13112, which determines federal agency duties in regard to preventing and compensating for invasive species impacts. USARHAW would agree to all feasible and prudent measures recommended by the Invasive Species Council that would be taken in conjunction with SBCT action to minimize the risk of harm. Implementing an environmental management system would further improve the identification and reduction of environmental risks inherent in mission activities.		This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by minimizing the introduction of alien species.	HQDA
28	All	Impacts on sensitive species (excluding federally listed) and habitats from spread of alien species.	Mitigation measures considered include inspecting and washing all military vehicles at wash rack facilities prior to leaving SBMR, KTA, or PTA to minimize the spread of weeds, such as fountain grass, and animal (invertebrate) relocations.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by minimizing the introduction of alien species.	USARHAW (G3)
29	All	Impacts on sensitive species (excluding federally listed) and habitats from spread of alien species.	Mitigation measures considered include requiring all construction vehicles and equipment, excluding privately owned vehicles, to undergo a mandatory wash prior to entering construction sites. The construction vehicles and equipment would be left at the construction site or would be rewashed before returning to the construction site.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by minimizing the introduction of alien species.	USARHAW (Transformation)/POH
30	All	Impacts on sensitive species (excluding federally listed) and habitats from spread of alien species.	Mitigation measures considered include replanting any area that is damaged by fires with appropriate plants similar to those destroyed by fire. Native species would be used in areas where their establishment seems likely. Plants known to be invasive or noxious would not be used.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by minimizing the introduction of alien species.	USARHAW (ITAM/DPW)
31	All	Impacts on sensitive species (excluding federally listed) and habitats.	Mitigation measures considered include preserving or restoring sensitive habitat when feasible on its owned or leased lands.			Would minimize impacts on sensitive species (not including federally listed species) and habitats by protecting/enhancing species and habitat.	USARHAW (DPW)
32	All	Impacts of training activities on migratory birds		In accordance with the Migratory Bird Treaty Act, USARHAW will avoid pollution or detrimental alteration of the environment for the benefit of migratory birds and would monitor migratory birds in the proposed ROI, with particular focus on species of concern, where practicable, to ensure that migratory bird numbers do not decline because of the Proposed Action.		Would minimize impacts on sensitive species (not including federally listed species) and habitats by protecting populations of migratory birds.	USARHAW

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
33	All	Impacts of training activities on migratory birds.	USARHAW is conducting and would continue conducting yearly inventorying, monitoring, and the collection and assessment of information on natural resources in training areas using, ITAM Land Condition Trend Analysis and Army ecosystem management that might be considered relevant to migratory bird conservation. Information gathered would be shared with the USFWS, the Biological Resources Division of the USGS, and other appropriate repositories, such as the Cornell Laboratory of Ornithology.			Would minimize impacts on sensitive species (not including federally listed species) and habitats by collecting and sharing valuable natural resource data that might protect/enhance species or habitat throughout the islands.	USARHAW (ITAM)
34	All	Impacts on natural resources from training activities.	Mitigation measures considered include providing resources to help adjacent private landowners and organizations manage their properties to minimize potential impacts of fire or other threats that may result from USARHAW activities or that may originate on private property and affect USARHAW activities.			Would minimize impacts on sensitive species (not including federally listed species) and habitats by providing adjacent landowners with the tools to prevent the spread of fire or alien species onto Army training lands.	USARHAW (DPW), state, county, or other organizations
35	ALL	Impacts on natural resources from training activities.	Mitigation measures considered include investigating a new regulatory authority to work with nonprofit organizations to purchase buffer lands.			Would partially mitigate for impacts on sensitive species by swapping lands less desirable for training and containing valuable natural or cultural resources for lands that may be more suited for training.	USARHAW and HQDA
36	ALL	Impacts on jurisdictional waters of the US from construction activities.		In accordance with Section 404 of the Clean Water Act, any activities involving the discharge of dredged or fill material into waters of the US must be reviewed by the US Army Corps of Engineers Regulatory Branch prior to construction to determine whether a Department of Army permit is required. If one is, the Corps would determine whether a previously issued general permit authorizes the proposed action, or it will process a permit application for the proposed fill. If a Corps permit were required, a Section 401 Water Quality Certification issued by the State of Hawai'i Department of Health, Clean Water Branch, would also be required, as well as compliance with other applicable federal law.	This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by protecting valuable wetlands.	USARHAW (Transformation)/POH
37	PTA	Impacts on cultural and natural resources due to construction and use of training facilities.	Mitigation measures considered include avoiding where practicable all lava tubes found to contain or potentially support native root dependent arthropods or cultural resources. All generated construction would be channeled away from lava tubes.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats and cultural resources to less than significant by minimizing impacts from construction activities.	USARHAW (DPW)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
38	PTA	Impacts on natural resources due to training activities.	Mitigation measures considered include dividing up the Keʻāmuku Parcel into training areas and using ITAM Land Condition Trend Analysis to determine the optimum training rotation to maximize vegetative regrowth while maintaining training.	.	Restricted training would occur in selected portions of maneuver areas.	This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by providing an ongoing program to monitor and protect ecosystems while maintaining training capabilities.	USARHAW (ITAM)
39	PTA	Impacts on natural resources due to the introduction of alien species.	Mitigation measures considered include building a vehicle wash facility at Kawaihae Harbor so that any Army vehicle transported from another island/training area would undergo a mandatory vehicle wash and inspection before traveling to or from PTA. Implementing this mitigation would depend on the utility requirements and space restrictions at Kawaihae Harbor.			This is an important component in reducing impacts on sensitive species (not including federally listed species) and habitats to less than significant by minimizing the introduction of alien species.	USARHAW
40	PTA	Impacts on natural resources and soil erosion due to fire.	Mitigation measures considered include continuing to allow grazing on the Keʻāmuku Parcel when it is not in use for training to keep the fuel load of the alien grasses below a dangerous level.			Would minimize impacts on sensitive species (not including federally listed species) and habitats by minimizing the potential for fire and introducing alien species.	USARHAW (PTA Commander)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
Cultural Resources							
41	SBMR, KTA, PTA	Impact of construction on Native Hawaiian traditional cultural properties and traditionally important places.	Mitigation measures considered include designing facility or training area, wherever possible, to avoid identified traditional places and limit visual impacts on traditional cultural landscapes by site location, design, and orientation.	The Army would consult with the Native Hawaiian community to determine the extent of impacts on the cultural landscape and possible means of avoiding or limiting them. If avoidance of identified traditional cultural properties or sacred sites is not feasible, because of interference with the military mission or risk to public safety, USARHAW would mitigate the damage to the sites through data recovery or other measures. Such mitigation would be developed in consultation with the SHPO[1] and the Native Hawaiian community, in accordance with the provisions of the PA,[2] AAP,[3] and AR[4] 200-4. Mitigation measures applicable to such resources could include interviews, photographic documentation, landscape studies, and archival research. However, such mitigation is not likely to reduce the impact on the Native Hawaiian community to less than significant, if such resources are severely damaged or destroyed as part of the Proposed Action.		Would reduce impacts on cultural and historic resources to less than significant through Section 106 consultation process to protect, preserve, or collect important cultural resources.	USARHAW (DPW)
42	SBMR, KTA, PTA	Impact of construction on archaeological resources.	Mitigation measures considered include designing facility construction or training areas to avoid, wherever possible, identified traditional places and to limit visual impacts on traditional cultural landscapes by site location, design, and orientation where feasible.	If avoidance of identified archaeological sites or newly discovered sites is not feasible, USARHAW will mitigate the damage to the sites through data recovery or other measures. Additionally, USARHAW would develop an AMP[5] to protect subsurface cultural resources discovered during construction. The AMP would include provisions for complying with NHPA[6] and NAGPRA[7] in cases of accidental discovery of archaeological sites, human remains, or cultural items. The data recovery and AMPs would be developed in consultation with the SHPO, in accordance with the provisions of the PA, AAP, and AR 200-4.		Would reduce impacts on cultural and historic resources to less than significant through Section 106 consultation process to protect, preserve, or collect important cultural resources.	USARHAW (DPW)
43	SBMR	Impact of training activities on archaeological resources.	Mitigation measures considered include flagging eligible sites to be avoided and monitored regularly by installation cultural resources staff. Participants in training activities on the ranges would learn how to avoid identified sites, and other mitigation would be the same as that described above under mitigation. Sites that could not be avoided because of mission necessity would be documented, as provided for in the data recovery plan.			Would reduce impacts on cultural and historic resources to less than significant by protecting them from accidental direct impacts as a result of training activities.	USARHAW (DPW)

[1] State Historic Preservation Office
[2] Programmatic Agreement
[3] Army's Alternative Procedures
[4] Army Regulation
[5] Archaeological Monitoring Plan
[6] National Historic Preservation Act
[7] Native American Graves and Repatriation Act. If any mitigation measure or proposed project action were to result in ground-disturbing activities, an archaeological monitor would be present, per an approved monitoring plan. If any subsurface cultural artifacts were found, ground-disturbing activities would stop until the extent of the cultural deposits could be properly assessed. If cultural items were determined to be human remains, appropriate authorities would be notified, according to the monitoring plan and a NAGPRA Plan of Action.

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
44	KTA and PTA	Impacts of construction on historic buildings.		If historic buildings at KTA, at PTA cantonment area, and at BAAF are found eligible for listing in the National Register, USARHAW would document the buildings in accordance with the standards of the Historic American Building Survey and the Historic American Engineering Record. The buildings would be evaluated and documented in compliance with Section 106 of the NHPA for all SBCT project activities. Consultation is now ongoing with the SHPO, Office of Hawaiian Affairs, and other Hawaiian organizations concerning the PA, which would be signed by USARHAW, the SHPO, and Office of Hawaiian Affairs. If WPAA buildings could not be avoided or protected from damage, the Army would document the buildings in accordance with the standards of HABS/HAER. This documentation would be conducted in accordance with the provisions of the PA covering Army compliance with Section 106 of the NHPA for all activities under the Proposed Action.		Would reduce impacts on cultural and historic resources to less than significant through Section 106 consultation process to protect, preserve, or collect important cultural resources.	USARHAW (DPW)
45	SBMR, PTA	Impact of reduced access due to acquisition of new training lands.		Mitigation measures considered include expanding access to unaffected TCPs or traditionally important places for members of the native Hawaiian community, in accordance with American Indian Religious Freedom Act and Executive Order 13007 on Sacred Sites.		Would reduce impacts on cultural and historic resources to less than significant by providing access to TCPs or traditionally important places on lands currently controlled by others.	USARHAW (DPW)
Human Health and Safety							
46	SBMR, KTA, PTA	Impacts of introduction of contaminants to ranges from increased ammunition use		Mitigation measures considered include additional risk based investigations as appropriate in the event any active range is closed and transferred out of DoD control. All remediation necessary to mitigate an imminent threat to human health and the environment will be undertaken at such time.		Would reduce impacts to less than significant by taking appropriate remediation prior to transferring property out of DoD control.	USARHAW (DPW)
47	SBMR	Impacts on installation restoration program sites		The Army will work with the EPA, Del Monte, and Campbell Estates regarding allocating, apportioning, and assigning liability and responsibilities for cleanup and would conduct any cleanup required by law.		Would reduce impacts to less than significant by reducing the potential spread of hazardous byproducts off-site.	USARHAW (Transformation)/POH

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
48	SBMR, KTA, PTA	Impacts from potential lead contamination.		Before project implementation, USARHAW would continue to review USARHAW lead database to determine the presence of lead in any structures in the project area. Any structures involved within the project area that are not on the database would be surveyed and added to the list prior to alteration. If LBP or lead pipes were discovered in a structure, proper cautionary and abatement procedures would be part of contract requirements when renovations are conducted. The manufacture and use of LBP has been prohibited since 1977, so LBP and lead pipes would not be used in new structures. Lead-contaminated soils from berms would be retained on-site and used in the construction of new berms for the UACTF. If lead-contaminated soil materials were not reused at the site for new berm construction, lead-contaminated soils would be remediated, in accordance with applicable federal and state standards.		Would reduce impacts from hazardous materials and waste to less than significant by reducing the potential spread of hazardous byproducts off-site.	USARHAW (Transformation)/POH
49	SBMR, KTA	Impacts from potential asbestos contamination.		Before project implementation, USARHAW would continue to review USARHAW asbestos database to determine the presence of asbestos in any structures in the project area. Any structures involved within the project area that are not on the database would be surveyed and added to the list prior to construction. If asbestos were discovered in a structure, proper cautionary and abatement procedures would be part of contract requirements when alteration takes place. For example, disturbance to friable ACM would be minimized per construction specifications to prevent airborne particulate and to decrease health and safety risks to workers.		Would reduce impacts from hazardous materials and waste to less than significant by reducing the potential spread of hazardous byproducts off-site.	USARHAW (Transformation)/POH
50	SBMR, PTA	Impacts from potential UXO contamination.		Before construction, USARHAW would employ qualified professionals to clear the proposed construction area of UXO, to remove all UXO encountered to ensure the safety of the site, and to document UXO surveys and removal actions in full accordance with applicable laws, regulations, and guidance. Additionally, UXO clearance activities would follow each training event on maneuver ranges and maneuver live-fire ranges.		Would reduce impacts from hazardous materials and waste to less than significant by protecting workers from UXOs.	USARHAW (Range Control)
51	SBMR	Impacts from construction on water monitoring wells.	Mitigation measures considered include incorporating an existing monitoring well into the design of the proposed WAAF, as long as construction does not affect the well by contaminating, destroying, permanently sealing, or otherwise preventing future sampling of the well. Technicians would have access to this well in order to continue the monitoring program. As the well currently exists within the apron/runway vicinity, the location is not believed to be a significant hindrance since the wellhead could be flush-mounted in the apron surface, similar to those at civilian gasoline service stations.			Would reduce impacts from hazardous materials and waste to less than significant by continuing to provide access to a groundwater sampling well.	USARHAW (DPW)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
52	SBMR	Impacts on public safety due to wildfires.		The Wildfire Management Program, which includes the Wildland Fire Management Plan, would be updated to address proposed activities at the South Range SRAA in order to minimize wildfires. This would include, but not be limited to, preparing a fire management area and standing operating procedures for SBMR, SBER, SRAA, and Helemanō Trail. These updates would be completed before training activities associated with transformation commenced. Additionally, ITAM geographic information systems would monitor the effectiveness of wildfire management activities. Army personnel would continue to practice best management practices in operations, and trained personnel and equipment would be on hand during training activities to respond to wildfires. An additional Range Automated Weather System would be constructed on SBSR before activities associated with transformation commenced in order to help identify weather conditions that pose a threat to the ignition and spread of a wildfire. To aid in suppressing any wildfires, two dip ponds would be constructed at SBMR, and one dip pond would be constructed at SBMR SRAA. Appropriate personnel and equipment during training would be assigned to dip ponds for responding to a wildfire. USARHAW would consult with the USFWS on any plan before it is finalized. USARHAW would implement reasonable and prudent measures and actions, as directed by USFWS.		Would reduce impacts from hazardous materials and waste to less than significant by reducing the threat of wildfire.	USARHAW (IFSO)
53	KTA	Impacts from potential contamination from use of SRTA.		USARHAW would use SRTA when practicable. SRTA would not produce a significant wildfire risk because the ammunition has a plastic tip and does not include the use of tracer rounds. Additionally, the ammunition would not contain lead and therefore would not contaminate the soil. Although the ammunition would leave behind a shell casing, units would follow USARHAW protocol of removing all target equipment and shell casings following training and otherwise would make every effort to restore the facility to its condition prior to their use. USARHAW will produce a site-specific training management plan to establish best management practices during training and to identify measures to prevent safety hazards, to ensure security precautions, and otherwise to maintain environmental stewardship.		Would reduce impacts from hazardous materials and waste to less than significant by minimizing contamination from wastes from training activities.	USARHAW
54	KTA	Impacts from potential PCB contamination.	Specific locations of the proposed CACTF have not been finalized, but before project commencement at KTA, the Army would consider further studies to evaluate the status of the chemical attenuation and extent of PCB contamination. If the findings show there is an imminent threat to human health and safety, a remedial cleanup would be implemented to remove contamination prior to CACTF construction, if necessary. Troops and Army personnel would avoid driving or training on and around the former transformer area until the release had been abated.			Would reduce impacts from hazardous materials and waste to less than significant by minimizing exposure of construction workers or soldiers to PCBs.	USARHAW (DPW)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
55	KTA	Impacts from potential spread of hazardous waste from wildland fire erosion.		The Wildland Fire Management Plan, Pōhakuloa and Oʻahu Training Areas, was developed to establish specific guidance, procedures, and protocols for managing wildfires on USARHAW training lands. The WFMP may also reduce the potential hazardous materials and wastes to spread from the resulting erosion and dust that may accompany a fire. The Army is considering updating the Wildfire Management Program, which includes the WFMP, to address proposed activities at KTA and KLOA and Drum Road in order to minimize wildfires. This would include, but not be limited to, preparing an FMA and standing operating procedures for KTA and KLOA, which would include Drum Road. These updates would be completed before training activities associated with transformation commenced. Additionally, ITAM geographic information systems would monitor the effectiveness of wildfire management activities. To aid in suppressing any wildfires, one dip pond would be constructed on KTA, and, during training, personnel and equipment would be assigned to a dip pond for responding to a wildfire. USARHAW personnel would continue to practice best management practices in operations, and trained personnel and equipment would be on hand during training activities to respond to wildfires. USARHAW would consult with the USFWS on any plan before it is finalized and would implement reasonable and prudent measures and actions, as directed by USFWS.		Would reduce impacts from hazardous materials and waste to less than significant by reducing the threat of wildfire.	USARHAW (IFSO)

Table ES-21
SBCT EIS Mitigation Matrix *(continued)*

	Training Area	Direct Effect	Other Mitigation	Regulatory/Administrative Mitigation	Training Duration Restrictions	Benefit of Mitigation	Responsible Party
56	PTA	Impacts of potential spread of hazardous waste from wildland fire erosion.		The Wildland Fire Management Plan, Pōhakuloa and Oʻahu Training Areas, was developed to establish specific guidance, procedures, and protocols for managing wildfires on Army training lands to control wildland fires and minimize/prevent damage to natural resources. However, the WFMP may reduce the potential of spread of hazardous materials and wastes from the resulting erosion and dust that may accompany a fire. The Army is considering updating the Wildfire Management Program, which includes the WFMP, to address proposed activities at PTA, WPAA, and military vehicle trail in order to minimize wildfires. This would include, but not be limited to, preparing a FMA and standing operating procedures for PTA, WPAA, and PTA Trail. These updates would be completed before training activities associated with transformation commenced. Additionally, ITAM geographic information systems would monitor the effectiveness of wildfire management activities. Since WPAA does not have a RAWS to aid in determining weather conditions and the threat of wildfire, a RAWS will be constructed there before transformation activities commenced. To aid in suppressing any wildfires, two dip ponds will be constructed on WPAA, and one dip pond will be constructed on PTA. During training, appropriate personnel and equipment will be assigned to dip ponds for responding to a wildfire. Army personnel would continue to practice best management practices in operations, and trained personnel and equipment would be on hand during training activities to respond to wildfires. USARHAW would consult with the USFWS on any plan before it is finalized. USARHAW would implement reasonable and prudent measures and actions, as directed by USFWS.		Would reduce impacts from hazardous materials and waste to less than significant by reducing the threat of wildfire.	USARHAW (IFSO)
Socioeconomics and Environmental Justice							
57	SBMR	Impacts of SBCT on local schools.	Mitigation measures considered include the following mitigation. If a school's population would increase because of SBCT, the school must be notified as soon as possible to secure funding and have sufficient time to hire new teachers. Since the local school districts receive additional funding for each military dependent attending public school, the cost for additional teachers would be partially borne by the Department of Defense.			Would mitigate to less than significant potential impacts on local schools from overcrowding.	USARHAW
58	PTA	Economic impacts on local business.	Because construction would occur over four years, mitigation measures considered include considering long-range procurement planning to avoid excessive demand on local and outside suppliers.			This would reduce the impacts on the local economy to less than significant by lessening impact on local supplies. Would also provide a benefit to local businesses.	USARHAW (Transformation)/POH